JONES, LAURA KAY, Ph.D. Reconceptualizing the Influence of Empathic Capacity and Emotional Numbing on Perceptions of Social Support in Female Survivors of Interpersonal Violence: An Initial Investigation into the Implications of Neurophysiology for Trauma Recovery. (2013).
Directed by Dr. J. Scott Young. 402 pp.

An estimated 80 percent of individuals living in the United States have experienced at least one traumatic event during their lifetime, with nearly one in eight developing symptoms of Posttraumatic Stress Disorder (PTSD) as a result (Breslau & Kessler, 2001). Prevalence rates, however, are higher among females, particularly female survivors of interpersonal trauma (Kessler, 2000; Olff, Langeland, Draijer, & Gersons, 2007; Tolin & Foa, 2006). Of the numerous factors that influence PTSD, social support has been identified as one of the foremost predictors of both symptom severity and duration (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003). However, research routinely assesses social support based solely on subjective measures of *perceived* support and has yet to elucidate whether individuals with PTSD have the neurophysiological capacity to accurately perceive and maintain available support networks.

Following trauma, the compromised ability of the prefrontal cortex to optimally regulate affective processing centers of the brain, accompanied by the dysregulation of an individual's autonomic nervous system, underlie the hyperarousal and affective numbing characteristic of PTSD (Garfinkel & Liberzon, 2009; Glover, 1992; Ogden, Minton, & Pain, 2006; Porges, 2011; Siegel, 1995; van der Kolk, 2006). Further still, such dysregulated neurological functioning occurs in tandem with a maladaptive cascade of regulatory hormones known to influence social functioning as well as empathy

(Hurlemann et al., 2010; Porges, 2003; Seng, 2010; Steuwe et al., 2012). In this way, neurophysiological corollaries of trauma may inhibit an individual's ability to both experience and express empathy, preventing survivors from recognizing and drawing upon the viable social support available to them (Nietlisbach & Maercker, 2009).

As such, the present study explored the relationship between PTSD symptom severity, emotional numbing, empathy, and perceived social support in female survivors of interpersonal trauma. Findings revealed that the difficulties in empathy experienced among survivors were directly related to PTSD symptom severity. However, such impairments appeared to be dictated by the survivor's degree of emotional numbing rather than the severity of the PTSD symptoms specifically. Emotional numbing, and difficulty perceiving or expressing positive emotions in particular, was found to also predict perceptions of social support. Furthermore, although empathy exhibited a direct relationship with perceived support, impairments in empathy did not mediate the relationship between positive emotional numbing and perceptions of the social support availability and valence as originally hypothesized. However, the severity of a survivor's comorbid depression appeared to confound nearly all of the relationships between the study variables. Nevertheless, emotional numbing, a condition common to both depression and PTSD, continued to show a strong relationship with empathy even when accounting for depression.

Such insights have marked implications on the way counselors understand and work with female survivors of interpersonal trauma and suggest that experiences of emotional numbing and comorbid depression should be central foci in early therapeutic

interventions. Interventions aimed at regulating the autonomic nervous system have shown success in alleviating both emotional numbing and struggles with depression and may be appropriate in this regard. The need to assess for and work with symptoms of emotional numbing and depression early in therapy may serve to enhance empathic capacity in survivors, facilitate the development of a strong therapeutic relationship and cultivate the interpersonal resources necessary for lasting change and healing to occur. Future research will serve to expand the many potential advantages that such findings can have on better conceptualizing the influence of interpersonal trauma on a survivor's ability to experience and express empathy and a full range of emotional experiences and benefit from the positive social support that exists around her.

Keywords: sexual violence, partner violence, trauma, posttraumtic stress disorder, emotional numbing, empathy, social support, neurophysiology

RECONCEPTUALIZING THE INFLUENCE OF EMPATHIC CAPACITY AND EMOTIONAL NUMBING ON PERCEPTIONS OF SOCIAL SUPPORT IN FEMALE SURVIVORS OF INTERPERSONAL VIOLENCE: AN INITIAL INVESTIGATION INTO THE IMPLICATIONS OF NEUROPHYSIOLOGY FOR TRAUMA RECOVERY

by

Laura Kay Jones

A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2013

Approved by

_____
Committee Chair

To the countless women who have endured and overcome unconscionable acts of violence, with each sunrise may you find renewed strength and a greater sense of peace. You are an inspiration to the many others still fighting to survive.

and

To my parents for always believing in me, for instilling in me the strength to honor my own voice, and for making it possible for me to follow my dreams.
I am truly blessed and love you dearly.

"To leave the world a bit better, whether by a healthy child, a garden patch, or a redeemed social condition; To know even one life has breathed easier because you have lived. This is to have succeeded."

~Ralph Waldo Emerson

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair _____

Committee Members _____

_____

_____

_____
Date of Acceptance by Committee

_____
Date of Final Oral Examination

ACKNOWLEDGEMENTS

Exploring the concept of social support is a truly humbling experience. Each day I met with survivors and advocates, read a new piece of literature, or simply sat down at my computer to write, I was reminded of just how blessed I am to be surrounded by the support of so many caring, insightful, and genuinely inspiring individuals. On every step of this path, the support and encouragement of mentors, colleagues, friends and family, and most notably the joy, camaraderie and love bound in those relationships gave life and strength to my ideas and allowed me to accomplish this dream. It is with the utmost gratitude that I recognize each of you.

I would first like to thank the North Carolina Coalitions against Sexual Assault and Domestic Violence (NCCASA and NCCADV) for their support and assistance in helping to reach agencies and survivors from across the state. This endeavor would have been entirely fruitless without your endorsement. I would like to especially thank Monika Johnson Hostler and Jennifer Przewoznik from NCCASA for their considerable time, expertise and investment in my research. Your encouragement made me appreciate even more the need for and significance of such collaborations in enhancing the lives of survivors. Further still I would like to thank the agencies, professionals and survivors who so graciously donated their time, efforts and voices to making this research possible.

Perhaps most instrumental to this achievement, however, was the support of my committee members, especially my dissertation chair. Dr. Young, you have resolutely believed in me and stood by me from the very first time I worked with you in

supervision, pushing me to grow not only as an academic, but as a counselor, scholar and human being. Your steadiness has and will always serve to remind me that the true potential in every moment becomes unfettered by simply taking a deep breath and trusting in the Self. For this and so much more, including your unending patience with my "thoroughness" and feedback on my occasional oversight in footwear, I am forever grateful. Paige, in so many ways you represent for me the power and voice that I hope to one day have in this field. You are not solely a scholar, but an outspoken advocate of women's rights, effortlessly blending the two to make a powerful statement and affect change for women at this University, in this state and around the nation and globe. I am honored to call you not only a mentor but a friend. And to the newest additions to my committee, Drs. Cashwell and Willse, thank you for so graciously agreeing to join in this journey and contribute your considerable time and wisdom. Your feedback and ideas undeniably enhanced not only this research but my greater understanding of research methodology. And Dr. Cashwell, the level of genuineness, presence and insightfulness that you bring to every conversation, even quick chats in passing, is uncanny and quite treasured by all those you mentor. I hold considerable gratitude for the feelings and insight engendered therein and will strive to give my future students such a gift.

Above all else, the love and support of friends and family are what made this journey possible and gave it true meaning. To my dearest rock star cohort and Frands--Lucy, Janeé, Ed, Ryan, Missy, Myra and Ben – your friendship has been such an unbelievable blessing these past few years. The praise hands, *Oprah* moments, and professions of "own it" … the hugs and smiles and tears…these special moments and so

many more I will always carry with me, forever cherishing the laughter, strength and warmth they beget. I never could have imagined the depth of the lasting friendships this process would bring or just how much each of you, with each of your special gifts, would and continue to inspire me so greatly! I could not have done this without each of you and look forward to the many more beautiful moments to come.

My dear friend Ashley, you have been an enduring source of joy, strength and comfort these past nearly 20 years. Through all that life has brought our way, you were forever there with a listening ear, a smile, a laugh and a fellow counselor's support. Your friendship is cherished.

My dearest Andy, although I am not sure you knew exactly what you were getting yourself into when you joined me midway through this journey, I would not be where I am today without your steadfast love and ready smile. It is through embarking on this journey that I was led to you and reminded again of the mysterious yet assured ways of life. And what an incredible team we make, founded on the premise and promise that, "A dream you dream alone is only a dream [, but] a dream you dream together is reality" (Lennon, 1980, as quoted in Sheff, 2000, p.61). I am so very fortunate to have you in my life, for the endless joy you bring, and for the many adventures we have yet to share.

As the youngest child in a family of three girls, there is little doubt that my sisters have provided a lifetime of love, support and inspiration. Leanne and Kristen, although we are now three very different women, I am honored to remain a reflection of you both--your strength and determination, your intelligence, your friendship and guidance. You have been such a big part of my becoming who I am and my having the strength and

passion to accomplish this. Although when we were young I often complained about regularly being assigned the middle of the back seat, honestly, it always made me feel so loved and so safe having my big sisters beside me. Whether near or far I forever feel your presence and strength by my side. And to my darling niece and nephew, Caroline and Zachary, thank you from the bottom of my heart for never failing to make me smile and for always reminding me of what is truly important in life. You all mean the world to me, and I love you dearly.

Lastly, it is with overwhelming love that I thank my parents. It is hard to fathom the myriad ways you have made this possible. You have always told me that I could do anything in life and to never underestimate my intelligence, strength or fortitude. Many parents say they want the best for their children, but you both embody that each and every day. You have selflessly given me countless, precious opportunities, supporting and loving me at every step. You shared in my joys and successes and inspired resilience in my times of struggle and growth. You have redefined for me what support truly means and not a day goes by that I do not honor the fact that I am who I am today because of you, your love, and your gracious way of being in and with the world. You modeled for me the power that rests in the giving of yourself for the betterment of another and thus it is your love that I take with me into the classroom, into the counseling room, and that radiates through my passion when working to end violence against women and empower the many women who have endured such hardship. There are no words to adequately express my gratitude and love for the many blessings you have bestowed upon my life. You are my heroes….

TABLE OF CONTENTS

Page

LIST OF TABLES xiii

LIST OF FIGURES xv

CHAPTER

I. INTRODUCTION 1

Rationale for the Study 4
Posttraumatic Stress Disorder and Social Support 4
Perceived Social Support and Wellbeing 5
Neurophysiology of Trauma and Emotional Numbing 7
Trauma and the Social Engagement System. 10
Empathy and Posttraumatic Stress Disorder 11
Statement of the Problem 14
Purpose of the Study 15
Questions to be Addressed 17
Significance of the Study 17
Definition of Terms 18

II. LITERATURE REVIEW 23

Changing Conceptualizations of Trauma over Time 24
Epidemiology and Sequelae of Trauma and Posttraumatic Stress Disorder 28
Violence against Women 29
From Trauma Response to Psychological Disorder 30
Nosology of Trauma Disorders 31
Defining Symptomatology of PTSD 33
Criterion A 34
Criterion B 35
Criterion C 35
Criterion D 38
Criterion E 39
Criterion F 39
Course of Symptoms 39
Corollaries and Risk Factors for PTSD 40
Pretrauma corollaries and previous experiences of Trauma 41

Peritraumatic factors 42
Posttraumatic indices 43
Comorbid Disorders 44
Neurobiological Theories of Trauma 46
Key Brain Regions Affected by Trauma 48
Limbic System 48
Amygdala 48
Hippocampus 49
Hypothalamus 50
HPA-Axis and Cortisol 50
Oxytocin 51
Brain stem 53
Cortical Components 53
Frontal and Prefrontal Cortex 54
Cingulate Cortex. 55
Insula 56
Dual Processing of Fear 57
Autonomic Arousal and Social Engagement 58
Disparities in Trauma Exposure and PTSD among Males and Females 60
Prevalence of PTSD 61
Expression of PTSD 62
Underpinnings of Disparities 63
Interpersonal Trauma and Posttraumatic Stress Disorder 65
Sexual Assault Survivors 68
Survivors of Partner Violence 72
The Role of Social Support in Posttraumatic Stress Disorder 76
Availability of Social Support 80
Valence of Social Support 83
Directionality of the Relationship 85
Erosion Model of Social Support 86
Emotional Numbing in Response to Trauma 88
Emotional Numbing and PTSD 90
Emotional Numbing, Avoidance and Hyperarousal 92
Measurement of Emotional Numbing 93
Emotional Numbing and Social Functioning 94
The Characterization of Empathy 96
Definitions of Empathy 97
Neuroscience of Empathy 99
Empathy and Emotional Numbing 101
Empathy and the Therapeutic Relationship 102
Empathy and Posttraumatic Stress Disorder 103
Trauma, Posttraumatic Stress Disorder, and Psychotherapy 105

III. METHODOLOGY 109

Research Questions and Hypotheses 109
Participants and Sampling.....112
Instrumentation 112
Demographic Questionnaire 113
Co-occurring Depression 114
Trauma Exposure 115
Women's Experiences with Battering 116
Posttraumatic Stress Disorder Symptom Severity 117
Empathic Capacity 118
Emotional Numbing.....120
Perceived Availability of Social Support.....121
Perceived Social Support Valence 123
Service Acquisition 124
Procedures.....125
Data Analysis 128
Preliminary Analyses 128
Primary Analyses 129
Research Question One.....129
Research Question Two 129
Research Question Three 129
Research Question Four.....130
Pilot Study.....134
Instrumentation 135
Participants.....136
Levels of Depression.....138
Types of Trauma Experienced 138
PTSD Symptom Severity.....141
Procedures.....141
Group One.....142
Group Two 142
Database Development and Descriptive Analyses 143
Results and Implications 143
Time Requirements.....144
Motivation to Participate.....144
Desire to Stop Participation 145
Emotional Distress 145
Order and Clarity of Instructions and Questions 146
Stressful Life Events Screening Questionnaire 147
Social Acknowledgment Questionnaire.....149
Empathy Quotient 150

Compensation 150
Advice to Future Participants.....150
Additional Comments 151
Data Entry and Database Development Concerns 152
Additional Study Changes 154
Pilot Limitations and Summary 156

IV. RESULTS 158

Description of Study Participants 159
Demographics 159
Psychotherapy and Psychopharmacotherapy 162
Levels of Depression.....164
Experiences of Interpersonal Trauma 165
Experiences of Other Trauma Types 170
Descriptive Statistics for Standardized Scales 172
Reliability Coefficients for Standardized Scales 176
Results of Hypothesis Testing 177
Research Question One 178
Research Question Two 179
Research Question Three 180
Hypothesis 3a.....181
Hypothesis 3b.....183
Research Question Four 185
Influence of Depression on Analyses 188
Summary of the Results 190

V. DISCUSSION AND IMPLICAITONS 194

Study Participants 194
Study Instruments 198
Study Hypotheses.....201
Research Question One 201
Research Question Two 202
Research Question Three 204
Research Question Four 208
Implications of Depression 210
Overview of Principal Findings 214
Study Limitations 216
Implications.....220
Trauma Theory.....221
Clinical Practice 222
Counselor Education 228

Future Research 230
Conclusion 236

REFERENCES 240

APPENDIX A. INSTRUMENTATION FOR PILOT STUDY 309

APPENDIX B. INSTITUTIONAL REVIEW BOARD PILOT STUDY APPROVAL 337

APPENDIX C. PILOT STUDY INFORMED CONSENT 339

APPENDIX D. PILOT STUDY INFORMATION SHEET 342

APPENDIX E. LETTER OF SUPPORT FROM PILOT STUDY SITE 344

APPENDIX F. RECRUITMENT LETTER TO COALITIONS 346

APPENDIX G. REVISED FULL STUDY INSTRUMENTATION 348

APPENDIX H. SITE RECRUITMENT LETTER 383

APPENDIX I. PARTICIPANT RECRUITMENT FLYER 386

APPENDIX J. FULL STUDY INFORMATION SHEET 388

APPENDIX K. FULL STUDY INFORMED CONSENT 390

APPENDIX L. LETTERS OF SUPPORT FROM STATE COALITIONS 393

APPENDIX M. INSTITUTIONAL REVIEW BOARD FULL STUDY APPROVAL 396

APPENDIX N. COPYRIGHT APPROVALS 398

LIST OF TABLES

Page

Table 1. Research Questions, Hypotheses, Variables, and Methods of Analysis....130

Table 2. Cronbach's Alpha Reliability Coefficients for Standardized Pilot Assessments....136

Table 3. Demographics of Pilot Study Participants....137

Table 4. Pilot Participant Exposure Rates to Non-interpersonal Forms of Trauma....140

Table 5. Complete Listing of Study Changes Given Insights from the Pilot Study....154

Table 6. Demographic Description of Full Study Participants....160

Table 7. Counseling History of Full Study Participants....163

Table 8. Exposure to Interpersonal Violence by Trauma Type, Average Number of Times and Perpetrator....167

Table 9. Additional Exposure to Non-Interpersonal Forms of Trauma....170

Table 10. Zero-order Bivariate Correlations between Study Scales....174

Table 11. Sample Score Ranges, Means, Standard Deviations, and Norms....176

Table 12. Alpha Coefficients for Standardized Assessments Used in Analyses....177

Table 13. Pearson Correlation Matrix of PCLC Total and Subscale Scores and EQ Scores....178

Table 14. Correlation Matrix of PCLC Total and Subscale Scores, MSPSS Total Scores and SAQ Total Scores....180

Table 15. Regression Analyses Assessing Positive Emotional Numbing as a Mediator between PTSD Symptom Severity and Empathic Capacity....183

Table 16. Regression Analyses Assessing General Emotional Numbing as a Mediator between PTSD Symptom Severity and Empathic Capacity 184

Table 17. Multivariate Regressions Assessing the Relationships between Emotional Numbing and Perceptions of Social Support Availability and Valence 187

Table 18. Regression Analysis Assessing Positive Numbing as a Predictor of Empathic Capacity 188

Table 19. Intercorrelations between Study Scales and CESD and Partial Correlations when Controlling for CESD 190

LIST OF FIGURES

Page

Figure 1. A model depicting the fluctuations between hypo- and hyper-aroused physiological states in survivors of PTSD (dysregualted nervous system) and the proposed impact on social functioning (recreated with permission from Wheatley-Crosbie, 2006, p. 21) 11

Figure 2. Proposed model of the relationship between PTSD symptom severity, affective numbing, empathic capacity, and perceived social support in female survivors of interpersonal trauma 16

CHAPTER I

INTRODUCTION

Over the past fifteen years, due to increases in school violence, attacks on the world trade center, and soldiers steadily returning from an ongoing war with a 12 year history, overt exposures to traumatic events have become epidemic. An estimated 80 percent of individuals living in the United States have experienced at least one traumatic event during their lifetime (Breslau & Kessler, 2001). Furthermore, acts of violence against women constitute a problem of epic proportions both in the United States and abroad, devastating the lives and wellbeing of countless women a day. Every two minutes in the United States a woman is sexually assaulted (Truman & Planty, 2012) and one in five women will experience rape at some point in her life (Koss, 1993; Tjaden & Thoennes, 1998). In addition, approximately two million women in the United States are assaulted at the hands of an intimate partner each year, representing 25 to 28 percent of adult women (Tjaden & Thoennes, 1998). Psychological trauma is now considered normative rather than outside the range of usual human experience, affects individuals across the lifespan, and has stark consequences not only for the individual but for society as a whole (Copeland, Keeler, Angold, & Costello, 2007; Courtois & Gold, 2009; Gere, Dass-Brailsford, & Hoshmand, 2009). In 2000, the total lifetime economic burden of interpersonal violence alone was $37 billion, four billion dollars for medical treatment

and $33 billion for lost productivity, which is a gross underestimation and does not include the costs accrued due to mental health treatment, misdiagnosis of stress disorders, the somatization that often results from trauma, or the countless acts of violence that go unreported (Corso, Mercy, Simon, Finkelstein, & Miller, 2007). According to the National Institute of Justice, when pain, suffering and lost quality of life are considered, adult sexual assault alone is estimated to cost the country 127 billion dollars annually, far surpassing the cost of other violent crimes (Miller, Cohen, & Wiersema, 1996).

Following exposure to a traumatic event, survivors frequently experience heightened states of vigilance and affective responding to tangible and intangible reminders of the event. For many survivors such responses begin to dissipate over time. For others, however, the reexperiencing of the event by way of body, mind and emotion becomes an unremitting and debilitating state, precipitating numerous diagnoses within the Diagnostic and Statistical Manual of Mental Disorders, most notably Posttraumatic Stress Disorder (PTSD; American Psychiatric Association, 2000; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992; Tull, Barrett, McMillan, & Roemer, 2007).

Nearly one in eight trauma survivors will develop PTSD, a multifaceted condition encompassing a myriad of interconnected neurological, physiological, psychological and interpersonal consequences (American Psychiatric Association, 2000; Breslau & Kessler, 2001). Considerable debate remains, however, as to why and how certain individuals develop PTSD, while others demonstrate resilience and even psychological growth in the face of trauma. Complicating an understanding of the variable consequences of trauma on the individual is the disparate pervasiveness of PTSD among males and females. Despite

the increased frequency with which males experience traumatic events, females are over twice as likely to develop PTSD, with PTSD symptomatology lasting up to four times longer even when controlling for the extent of trauma exposure and type of trauma experienced (Blain, Galovski, & Robinson, 2010; Kessler, 2000; Olff, Langeland, Draijer, & Gersons, 2007; Tolin & Foa, 2006). Furthermore, females report greater degrees of emotional numbing, restricted affect, and avoidance responses as well as experience higher levels of psychological reactivity to traumatic stimuli than do males (Litz, Orsillo, Kaloupek, & Weathers, 2000; Orsillo, Batten, Plumb, Luterek, & Roessner, 2004; Spahic-Mihajlovic, Crayton, & Neafsey, 2005). Yet, extant research into the unique impacts of PTSD on females remains scant.

The present study will contribute to the burgeoning knowledge of how trauma, specifically interpersonal trauma, affects women. Specifically, it will explore one of the most widely researched influential factors on the course of posttrauma pathology, namely social support, and will use principles of neuroscience and neurophysiology to reconceptualize current understandings of this key construct. Implications of such research may be instrumental in defining new, more efficacious therapeutic approaches to supporting and empowering these survivors. This chapter provides a rationale for a study of the relationship between PTSD symptom severity, emotional numbing, empathy and perceptions of social support in female survivors of interpersonal trauma. The chapter includes a statement of the problem, the purpose and significance of the study, and research questions to be explored, concluding with a definition of fundamental terms used in the study.

Rationale for the Study

The following section provides an overview of the seminal research relevant to the present study, exploring the interrelationships between constructs, presenting a rationale for how principles of neuroscience may be influencing perceptions of social support in survivors, and the implications that such may have on therapeutic practice.

Posttraumatic Stress Disorder and Social Support

Of the various inconsistencies in the development, expression and course of PTSD between males and females, the disparate role of social support is especially striking (Brewin, Andrews, & Valentine, 2000). Social support refers to the emotional, material and interpersonal assistance that is provided to an individual and which embeds an individual in a social context (Hobfoll & Lilly, 1993). A survivor's perception of the availability and beneficence of this support plays an important role in his or her psychological and physical wellbeing following trauma. In other words, an individual's belief that she has individuals in her life who will help to support her following an experience of trauma appears to be a critical factor in the formation and maintenance of PTSD symptoms. Particularly, it is one's *perception* of this social support, in terms of both the perceived availability and perceived valence (i.e., positive versus negative), that has proven critical in the development and course of PTSD, rather than actual acts of support that have already occurred or that the survivor has tangibly received. Thus, lower *perceived* levels of social support and perceived negative valence, such as rejection and blame, have been linked to increases in the number of PTSD symptoms experienced by a survivor and a longer course of those symptoms (Brewin, et al., 2000). In fact, the ability

to derive comfort from another individual is believed to predict the pervasiveness of trauma symptoms as well as the degree to which a survivor can regulate self-destructive behaviors even more so that the complexity of the trauma history (van der Kolk, Perry, & Herman, 1991).

Of importance, however, a perceived lack of social support is more predictive of posttrauama pathology for women than men (Andrews, Brewin, & Rose, 2003; Ozer, Best, Lipsey, & Weiss, 2008). Cloitre, Koenen, Gratz and Jakupcak (2002) hypothesized that this disparity may be related to women deriving a greater sense of well-being and personal meaning from an ability to develop and maintain relationships. A lack of perceived social support is likewise more predictive of increased PTSD symptomatology and symptom duration in female survivors of *interpersonal* trauma specifically (Charuvastra & Cloitre, 2008). Female survivors of interpersonal trauma, or violence induced intentionally and directly by another individual, develop PTSD at rates six times higher and manifest more symptoms of PTSD with increased severity than do their male counterparts as well as survivors of other types of trauma (Breslau et al., 1998). Herman (1992b) indicated that trauma enhances the need for protective relationships but that interpersonal trauma violates human connections, which can render such relationships difficult to establish or maintain, calling into question the proposed directionality of the relationship between social support and PTSD symptom severity.

Perceived Social Support and Wellbeing

The effects of social support on psychological wellbeing and health have been well documented in the literature. In particular, the Buffering Hypothesis (S. Cohen &

McKay, 1984) and Social Baseline Theory (Coan, 2010) posit that the presence of interpersonal social support serves to diminish and even inhibit intrapersonal distress in the face of psychological stressors. The social baseline theory takes this one step further in suggesting that such support actually functions to regulate emotions and calm the autonomic nervous system (Coan, 2010).

The directionality of this general relationship between social support and mental wellbeing (e.g., does increased social support reduce the effects of exposure to stress or does increased stress beget a reduction in perceived social support), however, is a matter of increasing debate. Numerous authors assert that impaired mental wellbeing often causes a reduction in interpersonal connections with supportive individuals, thereby leading to diminished and faulty perception of available support (Moak & Agrawal, 2010). Interestingly, the directionality of the relationship between social support and PTSD symptom severity in particular also has been drawn into question (King, Taft, King, Hammond, & Stone, 2006). Theorists have proposed that the cross-sectional nature of many studies investigating social support and PTSD have complicated an understanding of the relationship between these factors, whereby research utilizing longitudinal designs have actually shown that initial PTSD symptom severity at time one actually predicts perceived availability and valence of social support at time two but not the converse (King, et al., 2006; Laffaye, Cavella, Drescher, & Rosen, 2008). This erosion theory of social support in relation to trauma purports that the symptoms experienced by survivors often cause a breakdown in interpersonal interactions, a similar notion to that proposed by Herman (1992b) regarding female survivors of interpersonal

trauma. In other words, a woman who has experienced interpersonal trauma may underutilize the interpersonal support available to her without perceiving her withdrawal. In fact, she may subjectively experience loneliness, rejection and isolation while individuals close to her are attempting to support her. Clearly then, the need exists to understand the influence of trauma on perceptions of social support, particularly among women.

Neurophysiology of Trauma and Emotional Numbing

Interestingly, the focus of the current literature on social support and PTSD relates to *perceptions* of such support but fails to take into account possible trauma-induced neurological or physiological maladaptations that may be underlying trauma-induced interpersonal difficulties. More specifically, research has yet to examine whether individuals experiencing posttrauma pathology have the physiological capacity to accurately perceive support and effectively relate to support individuals (Nietlisbach & Maercker, 2009). Although authors have remarked that many of the symptoms of PTSD in females, such as shame, social isolation and diminished feelings of belongingness and affection, have pronounced connections to social functioning, very little research has examined how these social cognitive responses, especially from a physiological level, directly impact experiences of social support (Andrews, Brewin, Rose, & Kirk, 2000; Frewen et al., 2010). Further exacerbating the need to consider the physiological changes that may influence self-report measures of perceived social support are recent findings suggesting that the preponderance of social information is processed at a preconscious

level, suggesting that an individual's ability to accurately perceive available social supports may not be within her full awareness (Charuvastra & Cloitre, 2008).

Neurobiological models of how trauma affects the physiology of the body and brain elucidate this distinction and call into question the integral role of physiological arousal, fear processing, oxytocin and emotional regulation in modulating social interactions following trauma (Ogden, Minton, & Pain, 2006; Siegel, 1995; van der Kolk, 1994, 2006). A growing body of research has begun to explore the neurobiological correlates of traumatic responses and the ramifications of such alterations in brain regions and associated neuroendocrine (i.e., neurotransmitters and hormones) functioning on enduring maladaptive posttrauma functioning. The amygdala (i.e., the fear processing center of the brain), hippocampus (i.e., area of the brain responsible for memory consolidation and the integration of affective and contextual memories), insula (i.e., an area of the brain responsible in part for emotional processing, interpersonal functioning, and conscious awareness), hypothalamus and brain stem (i.e., deep regions of the brain involved in autonomic nervous system regulation, homeostasis, and the release of at least eight key hormones including oxytocin and cortisol), and prefrontal cortex (i.e., the regulatory center of the brain that modulates the fear-based responses of the amygdala) have been highlighted as the brain areas most impacted by trauma, the functioning of which have foremost implications on traumatic outcomes (Fishbane, 2007; Garfinkel & Liberzon, 2009; van der Kolk, 2006; Vasterling & Brewin, 2005).

Neurobiological theories of trauma subsume that under marked stress a breakdown occurs between the neurological pathways that connect the amygdala or

emotional fear processing center of the brain and areas of the brain that monitor, regulate and contextualize affective responses, namely the hippocampus and prefrontal cortex. This deterioration in the ability to effectively regulate emotions leads to fluctuations between extreme hyperaroused and hypoaroused physiological states, underscoring much of the symptomatic sequelae of the disorder, specifically emotional hyperresponsivity, emotional numbing, and social impairment (Porges, 2003a; van der Kolk, 2006). In addition, the decreased activation of the insulary cortex found following trauma has been hypothesized as leading to a diminished awareness of not only one's own emotions (e.g., emotional numbing) but also the emotions of others (e.g., empathy). Furthermore, traumatic stress causes a disruption in the functioning of the hypothalamic-pituitary-adrenal system (HPA-axis) in the body leading to an initial overabundance of cortisol, a neurotransmitter that functions in the regulation of stress responses in the body, as well as experiences of analgesia or insensitivity to emotional and physical pain often experienced following trauma. Such analgesic effects produced by the HPA axis in response to stress have been implicated as one possible basis for emotional numbing in PTSD (Glover, 1992; van der Kolk, 1989).

Studies have also shown that oxytocin, a key neurotransmitter in social bonding as well as in the regulation of amygdalar activity following mild stress, may be dysregulated in individuals, especially females, experiencing PTSD particularly following early interpersonal trauma (Seng, 2010). Oxytocin furthermore plays an integral role in deciphering the emotions of others (Hurlemann et al., 2010) and assessing interpersonal trustworthiness (Zak, Kurzban, & Matzner, 2004), important determinants

in social interactions and perceptions of interpersonal support. Given the palliative effects of oxytocin on social bonding and physiological stress responses, still others have proposed the use of pharmacologic oxytocin to augment and enhance the efficacy of Cognitive Behavioral Therapy (CBT) with survivors (Olff, 2012).

Trauma and the Social Engagement System

Further support for the potential profound influence of maladaptive neurophysiological functioning following trauma on perceptions of social support derives from the Polyvagal Theory (Porges, 2003a, 2007). Porges' theory asserts that evolution has led to a functional neural organization of the brain that regulates autonomic states to best support social behavior. When in a balanced state of autonomic arousal, an individual functions from the *Social Engagement System* (SES), a system which promotes behaviors that enhance social bonds by regulating the ready control of muscles that function in eye gaze, facial expressions, voice tone, social gestures, and even the ability to extract the human voice from background noises (Ogden, et al., 2006). In the face of a dysregulated autonomic nervous system, however, transitioning from *hyperaroused* states of hypervigilance and emotional labiality to *hypoaroused* state of affective numbing, an individual is not functioning within this optimal SES zone of arousal, thereby impairing the ability to effectively engage in social interactions (see Figure 1). As such, individuals with PTSD, who fluctuate between hypo- and hyperaroused states, may not possess an optimized physiological capacity for supportive social interactions. Studies investigating

diminished affective prosody and eye contact in individuals with PTSD have been proposed in support of such theories (Freeman, Hart, Kimbrell, & Ross, 2009; Steuwe et al., 2012) .

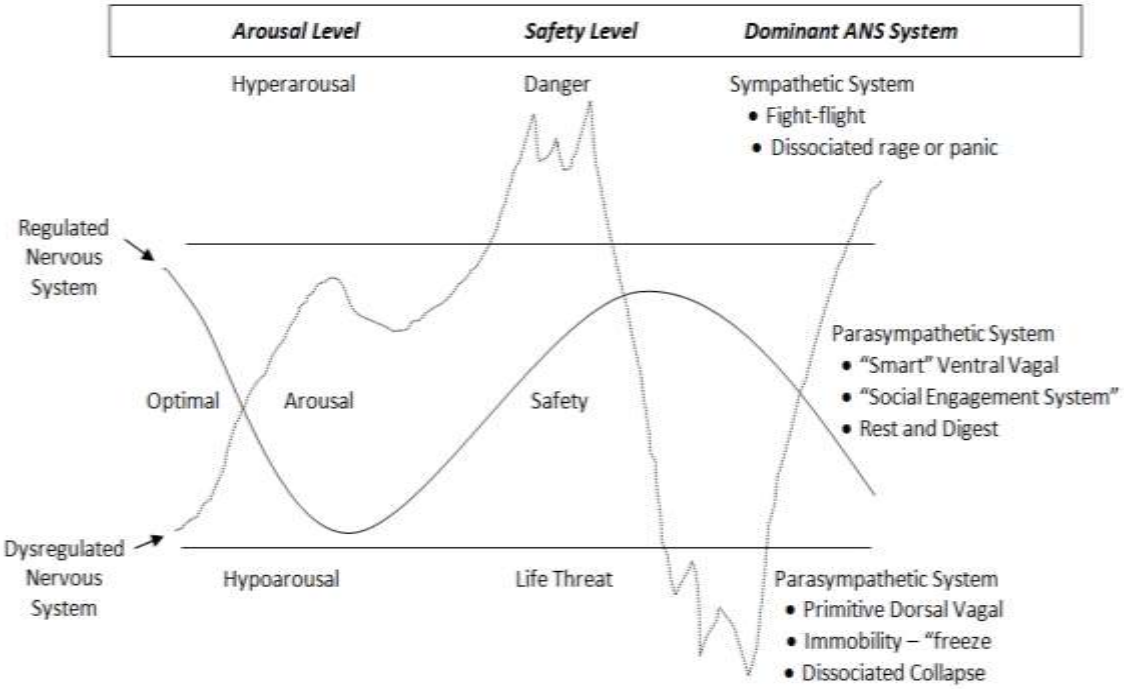

Figure 1. A model depicting the fluctuations between hypo- and hyper- aroused physiological states in survivors of PTSD (dysregualted nervous system) and the proposed impact on social functioning (recreated with permission from Wheatley-Crosbie, 2006, p.21).

Empathy and Posttraumatic Stress Disorder

Contributing to an understanding of the role of neurophysiology in perceptions of social support, the ability to establish and receive empathy has been put forth as the foundation for all social interactions (Siegel, 1999, 2001). Empathy is a construct of social cognition, however, that is contingent upon emotional awareness and the optimal

regulation of oxytocin in the body (Decety & Jackson, 2004; Domes, Heinrichs, Michel, Berger, & Herpertz, 2007; Eisenberg et al., 1994; Hurlemann, et al., 2010; Lawrence et al., 2007; Paivio & Laurent, 2001; Singer, 2006). Such connections further suggest that individuals with PTSD who experience emotional dysregulation, principally emotional numbing, may face a compromised ability to experience empathy for or from others, jeopardizing their ability to form and maintain social connections and further still impacting the development of a therapeutic relationship in clinical settings.

Only two studies to date have investigated the role of empathy in PTSD (Mazza et al., 2012; Nietlisbach, Maercker, RÖssler, & Haker, 2010). In both studies, authors found that individuals with PTSD experienced impairments in their empathic abilities as compared to nontraumatized controls. Interestingly such impairments were perceptible during both non-reflective, implicit measures of emotional contagion (i.e., measures of empathic function outside the conscious control of participants that are resistant to social desirability; Nietlisbach, et al., 2010), as well as in self-report behavioral measures of empathy (Mazza, et al., 2012). Nietlisbach et al. suggested that the "suppression of contagion" (p.841) witnessed in their study may be an unconscious coping strategy of the arousal system that prevents the individual from being further distressed by the stress and emotions of others. Researchers have begun to elucidate the role of such preconscious, neurologically driven responses, as distinguishable from conscious and volitional responses, in the development of key diagnostic criteria of PTSD, such as emotional numbing and avoidance (Dalgleish, Dunn, & Mobbs, 2009; Foa, Riggs, & Gershuny, 1995; Tull, et al., 2007; Tull & Roemer, 2003), hyperarousal (Porges, 2011; Porges &

Furman, 2011) and reexperiencing (Fishbane, 2007; Grigsby & Stevens, 2002; van der Kolk, 1994). Following a traumatic event, survivors develop automatic and habitual behaviors (e.g., startle responses) and perceptions (e.g., feelings of a lack of safety) which are outside the conscious awareness of the survivor (van der Kolk, 1994). Such "bottom-up" reactions may have marked implications on the understanding of traumatic reactions and the therapeutic approaches employed with survivors. In acknowledging the involvement of bottom-up, implicit processes in the impaired empathic functioning of survivors, Nietlisbach, Maercker, RÖssler, and Haker (2010) discuss the importance of exploring the underlying neurological corollaries of empathy and related causal pathways leading to decreased empathic abilities in individuals with PTSD.

Mazza et al. (2012) substantiate the pathophysiology surrounding observed behavioral impairments in empathy among trauma survivors by correlating deficits in empathy with assessments of emotional numbing utilizing both behavioral assessments (including the Empathy Quotient; Baron-Cohen & Wheelwright, 2004) and functional Magnetic Resonance Imaging (fMRI) technology. The authors found that on behavioral assessments, the severity of emotional numbing was significantly and inversely related to levels of empathy. Furthermore, Mazza et al. reported that trauma survivors demonstrated dysregulated activation of the right insula and left amygdala as compared to healthy participants, especially in the presence of negative stimuli, areas related to emotional processing, inhibition of excessive emotion, and empathy. Such evidence was proposed to indicate that survivors of trauma exhibit exaggerated automatic responses to threat-related stimuli and a compromised ability to perceive the facial expressions of others. The

authors concluded by hypothesizing that such impairments may have considerable implications on the interpersonal interactions of survivors. The present study aims to extend the research of Nietlisbach et al. (2010) and Mazza et al. (2012) by investigating the mediating function of emotional numbing and empathic capacity in the relationship between PTSD symptom severity and perceptions of both the availability and valence of social support.

Statement of the Problem

Although social support is accepted as an integral factor in the etiology and course of PTSD, very little is understood regarding social cognitive factors influencing that felt sense of support, such as empathy, or the neurological underpinnings impeding or facilitating perceptions of and responses to support. Researchers have yet to elucidate whether individuals with PTSD, potentially due to an inability to regulate and experience emotions, particularly positive emotions, face physiological impediments to an accurate perception of available sources of support. Furthermore, from a therapeutic perspective, interpersonal challenges experienced by clients have been shown to interfere with the development of the therapeutic relationship (Saunders, 2001). The therapeutic relationship, however, is recognized as the essential context in which healing from trauma occurs (Herman, 1992a) and is strongly predictive of therapeutic outcomes (A. Roth & Fonagy, 2006). Yet if survivors are unable to effectively experience interpersonal relationships, the beneficence of this healing context may be lost. Moreover, impairments in empathy would not only inhibit healing social interactions with friends, family and support individuals outside of a clinical setting but likewise impact how survivors

experience and benefit from the therapeutic relationship. If survivors cannot experience the empathy being offered by counselors, then one of Rogers' (1956) necessary and sufficient conditions for change cannot be established, jeopardizing the therapeutic alliance and subsequent benefits derived as a result, and ultimately the survivor's ability to heal. Furthermore, with the notable dropout, nonresponse and relapse rates often associated with psychotherapeutic interventions for PTSD (Olff, Langeland, Witteveen, & Denys, 2010), exploring the difficulties that survivors may have in accurately perceiving the support being offered in the clinical relationship would increase efficacy rates of available interventions.

Purpose of the Study

The purpose of the present study is to explore the relationship between PTSD symptom severity, empathy, emotional numbing, and perceived social support in female survivors of interpersonal trauma. Behavioral research routinely assesses social support via self-report mechanisms, disregarding potential neurological and physiological correlates that may underlie perceptions of social supports. Other authors have pointed to deficits in social cognitive factors such as empathy as one possible explanation for altered perceptions of support, but again have not acknowledged potential neurological underpinnings that may explain such connections to perceptions of support. The present study, however, will address this gap by investigating the relationship between empathy, perceived social support, and correlates of physiological dysregulation in PTSD, namely emotional numbing as investigated by Mazza (2012), within a single paradigm. The present study not only aims to substantiate findings of decreased empathic capacity in

trauma survivors with PTSD and the relationship between emotional numbing and empathy in survivors, but will extend the literature by investigating these constructs as potential mediating factors in the relationship between PTSD symptom severity and perceptions of available support. A theoretically derived model that represents the proposed relationship between constructs is shown in Figure 2. Although men also are affected by trauma and may likewise face impairments in social functioning, the present study serves to start with those individuals most affected by PTSD, namely female survivors of interpersonal trauma.

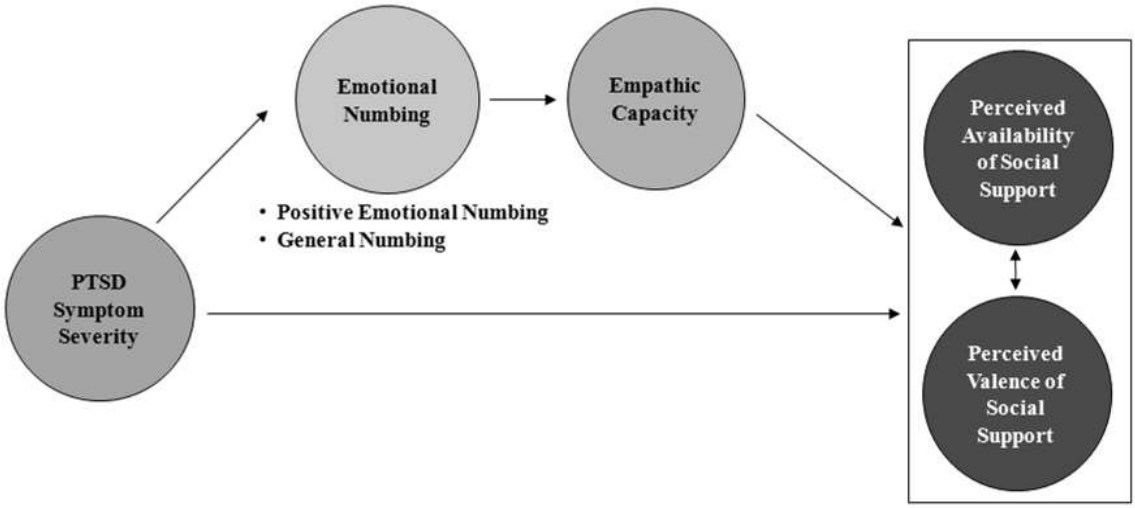

Figure 2. Proposed model of the relationship between PTSD symptom severity, affective numbing, empathic capacity, and perceived social support in female survivors of interpersonal trauma.

Questions to be Addressed

To investigate the relationship between empathic capacity, affective numbing, and perceived social support in female survivors of interpersonal trauma, the present study will address the following research questions:

Research Question 1: What is the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?

Research Question 2: What is the relationship between PTSD symptom severity and the perceived availability and valence of social support in female survivors of interpersonal trauma?

Research Question 3: Does affective numbing mediate the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?

Research Question 4: Does empathic capacity mediate the relationship between affective numbing and perceived social support and/or social support valence in female survivors of interpersonal trauma?

Significance of the Study

Given the high lifetime prevalence rates of trauma and PTSD among females, mental health professionals have an obligation to understand the implications of trauma and PTSD on clients' behavioral, psychological and physiological functioning. Moreover, this line of research could elucidate possible clinical implications of emotional numbing on experiences of empathy and maintenance of supportive relationships among survivors of trauma. The Council for Accreditation of Counseling and Related Educational

Programs (CACREP; 2009) standards call for competence in the, "effects of…trauma-causing events on persons of all ages" (p.11). Findings from the present study may inform efficacious counseling approaches for trauma survivors by elucidating possible complications clients may have in recognizing and receiving social support and counselor empathy. Given such insights into the mediating factors affecting perceptions of social support in trauma survivors, counselors can begin developing and incorporating techniques to reduce emotional numbing as well as build empathic capacity within the therapeutic relationship and social support networks integral to client healing.

Definition of Terms

Given the considerable debate surrounding a number of concepts presented in the present study, operational definitions for all terms are presented in an effort to aid comprehension and communication regarding the rationale findings and significance of the present study.

Survivor refers to an individual who has experienced and lived through a traumatic event regardless of the psychological outcomes of the experience or present psychological functioning of the individual. The use of survivor as opposed to victim was an intentional choice, and one which underscores an empowerment-based approach to working with those who have experienced traumatic events.

Trauma is defined as, "a direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of

death or injury experienced by a family member or close associate" (American Psychiatric Association, 2000, p. 463).

Interpersonal Trauma is defined as trauma arising out of "human design" (American Psychiatric Association, 2000) or more specifically is violence or threat thereof induced intentionally and directly by another individual (Charuvastra & Cloitre, 2008; Weaver & Clum, 1995). The *intentionality* specification in the definition rules out vehicular and mechanistic violence. Furthermore, combat trauma, although often involving violence directly and intentionally induced by another human being, often is considered a distinct class of trauma and thus is not included in the present definition (Weaver & Clum, 1995). For purposes of this study, interpersonal trauma includes sexual violence as well as all forms of partner violence, including physical, sexual, and emotional or psychological violence.

Battering in the present study is defined as a progression pattern of interaction in which one member of an intimate partnership experiences vulnerability, loss of power and control, and entrapment as a consequence of the other member's exercise of power by way of patterned physical, sexual, psychological, and/or moral force (Smith, Earp, & DeVellis, 1995).

Posttraumatic Stress Disorder is defined using the six diagnostic criteria outlined in the DSM-IV-TR (American Psychiatric Association, 2000). An individual must first have experienced a traumatic event (as defined above) that directly induced feelings of intense fear, helplessness and horror. The individual must experience recurrent intrusive recollections of the event in one of five stipulated manners. An individual diagnosis of

PTSD must also involve persistent avoidance of trauma-related stimuli and emotional numbing in at least three of seven delineated ways. Furthermore, the individual must experience hyperarousal that was not present prior to the trauma in two of five ways. Finally the three symptom categories must have been present for at least one month and the symptoms must induce significant distress and impairment in social, occupation or personal functioning.

Empathy is a multidimensional, dispositional construct that encompasses how the brain represents, understands, and adaptively reacts to the observed experiences and internal mental states of another individual both from a cognitive (e.g., inferring mental states) and emotional (e.g., empathic concern) standpoint (Dziobek et al., 2008; Rameson & Lieberman, 2009).

Empathic Capacity is "the capacity to understand intimately the thoughts and feelings of another person, to put oneself in the other's place," (Pigman, 1995, p. 238). As such, empathic capacity is the explicit measure of one's ability to be empathic as measured by the Empathy Quotient (Baron-Cohen & Wheelwright, 2004).

Social Support is defined as "those social interactions or relationships that provide individuals with actual assistance or that embed individuals within a social system believed to provide love, caring, or sense of attachment to a valued social group or dyad" (Hobfoll & Lilly, 1993, p.121). Therefore *perceived availability of social support* is the belief that such helping behaviors will be provided when needed (Norris & Kaniasty, 1996).

Social Support Valence encompasses the perceived positive or negative qualities associated with received social support. As such, social support systems could retraumatize and impede the individual in his or her recovery through attributions of blame, espousing a victim status in the survivor, taking control of the survivor's decisions, and/or distracting the survivor (Ullman & Filipas, 2001). To the contrary, social support can be positive in nature such as social acknowledgment (i.e., perceptions that individuals and society recognize her situation as traumatic, Mueller, Moergeli, & Maercker, 2008), communicating love and messages of esteem, and validating or believing the survivor's story (Ullman & Filipas, 2001). Social support valence is operationalized by responses on the Social Acknowledgment Questionnaire (Andreas Maercker & Müller, 2004).

Affective or emotional regulation is a multidimensional construct encompassing one's ability to monitor, evaluate, and modulate emotional reactions principally within the context of goal-directed behaviors (Gratz & Roemer, 2004). One of the four primary components of this construct includes an ability to accurately perceive and understand emotions (Tull, et al., 2007).

Affective or emotional dysregulation is considered a deficiency in one's ability to modulate emotions such that emotions feel unmanageable, shift rapidly, are expressed in intense and unmodified forms, or override reasoning, thereby disrupting goal-directed behaviors (Conklin, Bradley, & Westen, 2006; Taylor, Bagby, & Parker, 1997).

Affective or emotional numbing is defined as a restricted range of affect or a limitation in the capacity to experience and express emotions and characterized in the

DSM-IV as diminished interest in activities, feelings of detachment or estrangement from others and a restricted range of affect (American Psychiatric Association, 2000; Litz et al., 1997; Taylor, et al., 1997)

CHAPTER II

LITERATURE REVIEW

Trauma affects over 80 percent of adults 18 years and older in the United States (Breslau & Kessler, 2001). Although males are more likely to be exposed to traumatic events, females develop PTSD at twice the rate of their male counterparts, with female survivors of interpersonal violence developing PTSD six times more often than males (Breslau, et al., 1998; Kessler, 2000; Tolin & Foa, 2006). The amount and quality of social support perceived by survivors following a traumatic event has proven critical to the development and etiology of PTSD, especially among women survivors of interpersonal trauma (Kessler, 2000; Ozer, et al., 2008). However, social support is often measured using subjective, self-report indexes that do not take into account the survivor's physiological capacity to recognize, accurately evaluate, and respond to the offered support. A better understanding of factors influencing perceptions of social support and neurological corollaries thereof will assist counselors in tailoring more efficacious interventions for survivors. The following chapter comprises a review of pertinent literature prompting the purpose, methodology, and significance of the present study. The review begins with a thorough examination of the nature of trauma and posttraumatic stress disorder, followed by an overview of the neurophysiology changes induced by trauma, specifically those changes which have implications on emotional numbing,

empathy and experiences of social support. The chapter concludes by exploring the study populations and each study construct in depth as well as offering an overview of the psychotherapeutic implications of PTSD and trauma. Throughout this detailed analysis, the author continually interweaves how and why the multiple constructs were drawn together to create the proposed study model (see Figure 2) and rationale for the present study.

Changing Conceptualizations of Trauma over Time

Trauma survivors represent a unique population of clients that require specialized knowledge and multifaceted considerations on behalf of counselors (Briere & Scott, 2006). The American Psychiatric Association's revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) currently defines trauma as, "A direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or close associate" that engenders pervasive fear, helplessness or horror in the survivor (American Psychiatric Association, 2000, p. 463). This definition and thus the ensuing clinical implications and understanding of trauma, however, have varied markedly over time. Authors and trauma theorist agree that, with the exception of Dissociative Identity Disorder, no other diagnostic condition in the history of the DSM has created more controversy with respect to the boundaries of the condition, diagnostic

criteria, central assumptions, clinical utility, and prevalence than Posttraumatic Stress Disorder (Brewin, Lanius, Novac, Schnyder, & Galea, 2009; Spitzer, First, & Wakefield, 2007).

Derived from the Greek word for "wound," tales of trauma and the profound consequences of such events date back to writings in antiquity, yet it was not until the late nineteenth century that the first noted writings on the characterizations and clinical implications of traumatic events emerged in the work of Pierre Janet and Sigmund Freud. In the mid 1890's both practitioners developed notably similar theories detailing the etiology of hysteria, namely that experiences of psychological trauma, particularly sexual trauma, beget symptoms of hysteria (Herman, 1992b). In his *The Aetiology of Hysteria* (1962) Freud delineated the deleterious consequences of sexual assault and childhood sexual abuse on the psychological wellbeing of women, accounts which remain profoundly analogous to current conceptualizations of how abuse impacts the individual. However, his traumatic theory of hysteria was met with vehement contention within the societal and political climate of his time, as conceding to such theories would have been tantamount to acknowledging the severe sexual objectification that women and children faced. Such censuring pressured Freud into publically repudiating his claims. The potential ramifications of his discoveries were thereby stifled, but those early accounts of the consequences of childhood sexual abuse and society's condemnation of such theories ultimately laid the foundation for all of psychoanalysis (Herman, 1992b).

With such early models of trauma often overlooked, modern theories of trauma have been based largely upon studies detailing the reactions of male soldiers to war

trauma. Research investigating the development of trauma and apposite interventions for survivors reemerged around the time of the First World War, purportedly as a means of rehabilitating soldiers for redeployment (van der Kolk, 2007). This attention waned during times of peace but again came to the forefront of psychiatrists and psychologists with the Second World War but verifiably took command of the research and literature within mental health fields around the time of the Vietnam War. Concurrently, the women's movement was drawing marked attention to the profound consequences of sexual and domestic violence against women and children. Prior to this time, previous iterations of the DSM recognized reactions to stressful experiences as a 'transient situational disturbance' whereby it was proposed that the physical and psychological experiences of an individual would eventually wane once the stressor was removed, unless the individual had an underlying psychological condition (Yehuda & Bierer, 2009). However, the examination of traumatic responses on both of these fronts (i.e., combat and violence against women) led to the inclusion of a distinct posttraumatic stress disorder diagnosis in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1980). The DSM-III, however, classified trauma, the first criterion in a diagnosis of PTSD, as an event existing "outside the range of usual human experience" (p. 236). Given the significance of this addition to the diagnostic manual in legitimizing the potential deleterious effects of trauma, research continued and awareness expanded, and with it so too did the definition of what constitutes a traumatic experience.

The publication of the current DSM-IV-TR brought a considerably more inclusive definition of trauma as compared to preceding editions (American Psychiatric Association, 2000). As detailed in this definition, such varied events as a car accident, natural disasters, learning about a death of a loved one, and even a particularly difficult divorce can all be considered variations of traumatic experience. This expanded contemporary definition however engendered a 59 percent increase in trauma diagnoses and lead to a very broad spectrum of potential traumatic events that induce subjective experiences of fear and perceptions of threat to self or close other (Breslau & Kessler, 2001).

Although further changes to the definition of trauma are imminent in the ensuing fifth edition of the DSM, modern trauma theory conceptualizes trauma and traumatic responses as occurring along a continuum, a conceptualization that has had notable implications on research in the field (American Psychiatric Association, 2000; Breslau & Kessler, 2001; Kessler et al., 2002). Research now elucidates the importance of differentiating between the broad spectrum of traumatic experiences (e.g., combat, grief or bereavement, natural disaster, interpersonal violence, child maltreatment) when investigating the potentially discrepant etiology, physiological responses, course, and efficacious therapeutic interventions for the range of potential traumatic responses, from acute stress responses to PTSD and disorders of extreme stress not otherwise specified (DESNOS), a newly proposed classification of traumatic response for the forthcoming DSM-V (Breslau & Kessler, 2001; Faergemann, Lauritsen, Brink, & Mortensen, 2010; Kelley, Weathers, McDevitt-Murphy, Eakin, & Flood, 2009; Kessler, et al., 2002; van der

Kolk et al., 2009). Survivors of interpersonal trauma, for example, tend to experience greater psychological distress than survivors of other traumatic events, a special understanding of which may be obscured if survivors of disparate classifications of trauma are grouped together in research paradigms (Charuvastra & Cloitre, 2008).

Epidemiology and Sequelae of Trauma and Posttraumatic Stress Disorder

Given both the expanded characterization of trauma as well as contemporary societal factors (i.e., September 11; an increase in community violence, mass shootings at schools and public venues; fighting an eleven year war; civil and religious wars around the world; and natural disasters such as the 2011 tsunami in Japan and Hurricane Katrina, just to name a few), prevalence of trauma exposure is now ubiquitous. Studies consistently report lifetime exposure to at least one traumatic event reaches 50 percent with some studies finding rates as high as 80 and 90 percent (Breslau, 2002, 2009; Breslau & Kessler, 2001; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In primary care settings, among the most prevalent forms of trauma exposure include witnessing serious injury or death (54 percent), intimate partner violence (51), natural disaster (41 percent), sexual assault (35 percent), physical assault (33 percent), serious accident (33 percent), with considerable variation among incidence of trauma types between males and females (Freedy et al., 2010; Peirce, Burke, Stoller, Neufeld, & Brooner, 2009). Although some epidemiological researchers indicate that most respondents report only one lifetime traumatic event (Kessler, et al., 1995), unambiguous evidence substantiates that revictimization is highly prevalent within certain trauma types, expressly child abuse, sexual violence and partner violence (Classen, Palesh, &

Aggarwal, 2005; Cloitre & Rosenberg, 2006; Testa, Hoffman, & Livingston, 2010; Ullman, Najdowski, & Filipas, 2009; van der Kolk, 1989). Survivors of childhood maltreatment in particular are up to 11 times more likely to experience interpersonal trauma later in life (Bensley, Van Eenwyk, & Wynkoop Simmons, 2003).

Violence against Women

Interpersonal violence against women and young girls is a "wicked problem" (p. 171) of epidemic proportions both worldwide and in the United States (Kazdin, 2011). Every two minutes in the United States a woman is sexually assaulted (Truman & Planty, 2012) and one in five women will experience rape at some point in her life (Koss, 1993; Tjaden & Thoennes, 1998). Approximately two million women in the United States are assaulted at the hands of an intimate partner each year, representing 25 to 28 percent of adult women (Tjaden & Thoennes, 1998). Females between the ages of 16 to 24 years are especially vulnerable to intimate partner violence, with one in four women 14 to 18 years old reporting physical and/or sexual assault by a partner (Amar & Gennaro, 2005; Silverman, Raj, Mucci, & Hathaway, 2001; U.S. Department of Justice, 2001). Furthermore, nearly one in three adult women was sexually abused as a child (Briere & Elliott, 2003). Such grievous acts have immense repercussions on both the individual and society. According to the National Institute of Justice, when pain, suffering and lost quality of life are considered, adult sexual assault alone is estimated to cost the country 127 billion dollars annually, dwarfing the cost of other violent crimes (Miller, et al., 1996). Due to underreporting resulting from such factors as self-blame, disbelief, stigmas related to victimization, and cultural endorsement of such forms of violence, however,

these numbers represent gross underestimations of the actual extent of violence and aggression that women and girls endure every second of every day in the United States (Kazdin, 2011). The pervasiveness of the problem, however, is without question and leaves countless women at risk for developing debilitating disorders such as PTSD. As such, determining how counselors can optimally support and empower women survivors of interpersonal violence to regain their psychological strength and wellbeing is of utmost concern and serves as the foremost foundation for the present study.

From Trauma Response to Psychological Disorder

Humans have an innate and highly complex physiological organization that allows for effective responding to environmental stressors. Biopsychosocial evolutionary understandings of trauma recognize peritraumatic (i.e., during the traumatic event) reactions as inherently highly adaptive responses enacted to increase one's potential for survival (Christopher, 2004; Freyd, 1994; Perry, Pollard, Blakley, Baker, & Vigilante, 1995). Clearly illustrating this notion, Christopher (2004) stated, "…stress is best understood as the primary prerational form of biopsychological feedback regarding the individual's relationship with [her] environment" (p. 76). The author goes on to propose that although the most prevalent reaction to a traumatic experience is growth, there remains a significant potential for such evolutionary survival mechanisms to become maladaptive, eloquently concluding that regardless of the adaptive or maladaptive outcome, trauma inevitably leaves an individual transformed on both a physiological and psychological level (Christopher, 2004).

As such, following exposure to a traumatic event, survivors often experience heightened states of vigilance and affective responding to tangible and intangible reminders of the event. For many survivors these responses begin to dissipate over time, exemplifying adaptive responses to extreme stress, yet for others the reexperiencing of the event by way of body, mind and emotion becomes an unremitting and debilitating state (Rothbaum, et al., 1992; Tull, et al., 2007). In the case of the latter, traumatic experiences lead to a complex and interrelated myriad of potential long-term, deleterious ramifications. For approximately 12 to 25 percent of the individuals who experience a traumatic event such enduring aftereffects serve as the underpinnings of a number of psychological disorders as defined by the DSM, most notably posttraumatic stress disorder (Breslau, Davis, Andreski, & Peterson, 1991; Breslau & Kessler, 2001; Kessler, et al., 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993).

Nosology of Trauma Disorders

Pathological responses to trauma constitute complex disorders involving a multitude of allied social, physiological, physical, and psychological ramifications. The spectrum of such responses is contingent largely upon the chronicity of the symptoms, the degree of impairment, and the iterative nature and severity of the trauma experienced. Acute Stress Disorder (ASD) describes acute presentations of posttrauma symptomatology occurring immediately after exposure to a traumatic event and up to one month following the trauma. First introduced into the DSM in its fourth edition, a diagnosis of ASD requires that an individual experience marked distress following a traumatic experience (the nature of such distress is not qualified as in a diagnosis of

PTSD), and subsequently endorse three dissociative symptoms, one re-experiencing symptom, marked avoidance, marked anxiety or increased arousal, and evidence of significant distress or impairment (American Psychiatric Association, 2000; Bryant, 2006). The goal of developing the ASD diagnosis was to identify individuals most at risk for later developing PTSD. Given extensive evidence, however, researchers now call into question the predictive validity of ASD due to the potential for pathologizing conceivably adaptive responses to trauma as well as marked concerns regarding the inclusion of dissociative diagnostic criteria, criteria not included in a diagnosis of PTSD (Bryant, 2011). Such is one of several disputations currently being investigated in research trials for the ensuing fifth edition of the DSM, yet for the purposes of the present study posttrauma symptomatology must have been present for at least one month following the most recent trauma episode.

Research trials for the forthcoming DSM-V have also investigated the existence of a complex form of posstraumatic stress disorder, namely Disorders of Extreme Stress not Otherwise Specified (DESNOS; van der Kolk, et al., 2009; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). DESNOS appears to encompass distinguishing outcomes when compared to the consequence of PTSD. The profoundly disruptive nature of DESNOS on the individual and individual's sense of self have lead some researchers to characterized complex posttraumatic stress disorders as experiences of "mental death" (Ebert & Dyck, 2004, p. 617). Although data on the prevalence of DESNOS is much more limited than for PTSD given the lack of formal clinical diagnostic criteria, 68 percent of children who experienced sexual abuse were found to have DESNOS-related

symptoms over and above an expression of PTSD alone (S. Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997). Such evidence suggests that developmental trauma or interpersonal trauma occurring in childhood, instances that involve a breakdown of critical attachment relationships may have a profoundly different presentation or course than interpersonal violence occurring in adulthood (Ford, Stockton, Kaltman, & Green, 2006). Researchers have also explored complex trauma responses in survivors of torture and human trafficking (Courtois, 2004; Ebert & Dyck, 2004). Some evidence further suggests that survivors of intimate partner violence may also fall into the category of complex trauma (Courtois, 2004), yet additional research would be helpful in distinguishing the trauma response of survivors of iterative trauma from single-incident adult experiences of sexual and physical assault. The present study, although it does not specifically examine the difference between single and iterative trauma, will investigate trends between the two populations with respect to symptom severity, empathic capacity, emotional numbing and perceived social support.

Defining Symptomatology of PTSD

Hyperarrousal, recurrent reexperiencing of the traumatic event, and emotional numbing and avoidance are considered hallmarks of PTSD symptomatology, yet for a formal DSM diagnosis of Posttraumatic Stress Disorder (i.e., 309.81) to be given, certain standardized conditions must be met. One month-post trauma, clinical diagnoses of PTSD are currently constructed using six criteria (American Psychiatric Association, 2000).

Criterion A. Also commonly termed the *stressor criterion*, Criterion A stipulates two requirements. Firstly, an individual must experience a traumatic episode, defined by the APA (2000) as a,

> …direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about an unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or close associate (p. 463).

The second prerequisite states that the event must cause intense fear, helplessness or horror in the survivor. Both components of Criterion A have faced sharp criticism among both clinicians and researchers in the field (Breslau & Kessler, 2001). The debate over what actually constitutes a traumatic event emerged with the first inclusion of the diagnosis into the DSM-III and has persisted through subsequent iterations. Numerous researchers and clinicians have remarked that with no other diagnosis in the DSM is a specific precursory event stipulated (Brewin, et al., 2009). Further, what may be traumatic for one individual may not be for another, and as such to attempt to include all possible traumatic events within the context of a diagnosis may be unachievable. More notable however is the criticism over the latter stressor requirement, that the event must induce marked fear, helplessness or horror in the survivor. Although such are indeed characteristic reactions following trauma, limiting the range of psychological responses may potentially discount subpopulations of survivors, namely survivors of sexual and partner violence, whose predominant posttraumatic reactions tend to include powerful experiences of anger, guilt, and shame, the latter of which is often reinforced by an

equally blaming culture (Dunmore, Clark, & Ehlers, 2001; Lee, Scragg, & Turner, 2001; Pagelow, 1988). In a recent sample of adult sexual assault survivors, over 75 percent endorsed shame as a leading psychological response (Vidal & Petrak, 2007). Furthermore, Vidal and Petrack (2007) found that knowing one's assailant, as in the case of partner inflicted sexual assault, led to even greater feelings of shame. This serves as just one example of how some survivors who may be experiencing marked distress and compromised functioning, yet could be overlooked given the current status of this criterion.

Criterion B. One of the first key features of PTSD symptomatology following peritraumatic exposure and distress is a persistent re-experiencing of the event by way of body, mind and senses. This criterion can be fulfilled in one of five manners. The survivor may experience recurrent and intrusive distressing recollections of the event (e.g., images, thoughts, or perceptions), recurrent distressing dreams of the event, acting or feeling as if the traumatic event is actively recurring (e.g., a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated), or intense psychological distress or physiological reactivity upon exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (American Psychiatric Association, 2000). As such, the survivor remains trapped in the traumatic moment, continually reliving the victimization.

Criterion C. The third criterion for a formal diagnosis of PTSD includes fulfilling at least three of seven conditions related to *either* behavioral avoidance *or*

affective numbing, namely 1) efforts to avoid thoughts, feelings, or conversations associated with the trauma, 2) efforts to avoid activities, places, or people that arouse recollections of the trauma, 3) an inability to recall an important aspect of the trauma, 4) markedly diminished interest or participation in significant activities, 5) feeling of detachment or estrangement from others, restricted range of affect, or 6) a sense of foreshortened future. From the list above, one can see that there is a marked distinction between those conditions related to avoidance versus numbing. Having such a double-barreled criterion has created considerable debate within both trauma research and clinical practice. Although these two constructs were initially considered synonymous, with emotional numbing serving as solely a form of volitional emotional avoidance, growing research is now beginning to elucidate the distinctiveness of the concepts both in their function and physiological underpinnings (Asmundson, Stapleton, & Taylor, 2004; Litz & Gray, 2002; Litz, et al., 1997). Confirmatory factor analyses have repeatedly demarcated a four factor rather than the current three factor model of PTSD symptomatology, which discerns avoidance and numbing (Friedman, Resick, Bryant, & Brewin, 2011). Furthermore, given recent technological advances in neuroimaging and endocrine assays, mounting evidence suggests that emotional numbing is more related to hyperarousal (a detailed description of hyperarousal will be presented in the subsequent section) than behavioral avoidance, with numbing and hyperarousal functioning as the polar ends of a cycle of physiological reactivity, as was depicted in Figure 1 (Z. Solomon, Horesh, & Ein-Dor, 2009). This wealth of evidence has led researchers and clinicians to

call for the two constructs to be differentiated as discrete symptom clusters in the forthcoming fifth edition of the DSM.

However, such a bifurcated conceptualization of numbing and avoidance has marked significance on both clinical practice and research. With regard to clinical practice, needing an endorsement of three of the seven conditions, given that they represent notably different experiences and constructs, it is often the most difficult criteria for survivors to fulfill (Schützwohl & Maercker, 1999). Thus, numerous *subsyndromal* survivors, whose symtomatology is notably impairing their everyday functioning do not get diagnosed and may be prohibited from receiving both clinical services and external validation of their experiences (Cukor, Wyka, Jayasinghe, & Difede, 2010; Schützwohl & Maercker, 1999; Zlotnick, Franklin, & Zimmerman, 2002). Such a potential disservice was elucidated by Ehlers, Mayou and Bryant (1998) who stated, "a substantial proportion of [survivors] who did not meet the avoidance criterion reported disability. These patients may require treatment, and it may not be sensible to assign them non-patient status just because they do not meet an arbitrary score for avoidance and numbing criteria" (p. 516). Such subthreshold classification also often disqualifies survivors from participating in PTSD related research studies. However, individuals who may be experiencing numbing but not avoidance or vice versa as one feature of their trauma response may have extreme implications on the present understanding of trauma and trauma related functioning, particularly social functioning. As with the present study, research on PTSD related functioning has begun to incorporate

individuals with subthreshold PTSD and use severity of symptom ratings rather than a true cutoff for PTSD diagnosis when considering symptomatology (Nietlisbach, et al., 2010).

Furthermore, the historically pooled criterion of avoidance and numbing has heavily influenced the manner in which the clinical diagnostic criteria are studied. Classic research on avoidance or emotional numbing in trauma-based research often use an endorsement of cluster C symptomatology as a measure of presence and degree of impairment of these variables (Orsillo, Theodore-Oklota, Luterek, & Plumb, 2007). In such circumstances, researchers often use the term *avoidance* in describing the pooled effects of both avoidance and emotional numbing. Other researchers have used assessments measuring constructs presumed to empirically overlap emotional numbing (e.g., alexithymia, anhedonia, affective prosody, interoception, and emotion regulation) as a means of capturing the degree of impairment in the emotional numbing construct alone (Freeman, et al., 2009; Frewen, Dozois, Neufeld, & Lanius, 2011). More recently, however, noting the distinctive importance of emotional numbing in a comprehensive understanding of survivors, researchers have begun to develop scales that intend to measure the construct itself (Orsillo, et al., 2007). Such assessments, as have been used in the present study, now lead the way in better conceptualizing the emotional experiences of survivors.

Criterion D. Many trauma theorists deem hyperarousal the cornerstone of PTSD symptomatology, as the pervasiveness of this construct in survivors has proven more predictive of psychopathology and functional impairment than other symptom clusters

(Heir, Piatigorsky, & Weisæth, 2010; Schell, Marshall, & Jaycox, 2004). In order to fulfill this criterion, two of the following four symptoms of hyperarousal must be endorsed: 1) Difficulty falling or staying asleep, 2) irritability or outbursts of anger, 3) difficulty concentrating, 4) hyper-vigilance, or 5) exaggerated startle response. As will be explored in greater detail, the hyperarousal endured by survivors is a direct result of the alterations in neurophysiology that occur following trauma and appears to function in intimate reciprocity with experiences of emotional numbing (Tull & Roemer, 2003).

Criterion E. The duration of the symptoms experienced in Criteria B, C, and D must persist for more than one month following the trauma. As describe, distress of shorter duration often falls into the diagnostic categories of Acute Stress Disorder or Adjustment Disorder, yet the pervasiveness of symptom distress may last a lifetime. Furthermore, compound and iterative experiences of trauma may prolong and escalate the duration of distress.

Criterion F. The final criterion covers the functional impairment associated with Criteria B through D. The aforementioned criteria must induce clinically significant distress or impairment in social, occupational, or other important areas of functioning. The impairment experienced in social functioning is at the core of the present study.

Course of Symptoms

One of the specifiers of a PTSD diagnosis details the duration and course of the symptomatology. Acute refers to symptoms that have lasted less than three months, whereas chronic stipulates symptoms that have endured three months or longer. Furthermore, time since the trauma exposure has been found to correlate negatively with

symptom distress and mediate PTSD symptom severity (Foy, Madvig, Pynoos, & Camilleri, 1996; Schell, et al., 2004). Inconsistencies in the directionality of this relationship, however, have been noted, with symptom severity increasing over time, thereby purportedly illustrating the potential chronic and debilitating nature of the disorder (Amir, Kaplan, & Kotler, 1996). That being said, researchers frequently ignore the possibility that psychological distress may have a "qualitatively different developmental expression over time" (Weaver & Clum, 1995, p. 134). Therefore, it may not be that symptoms necessarily strengthen or wane over time, but that the experience of and relationship with the symptom varies. Neurophysiological evidence has begun to shed light on how time since trauma may specifically impact physiological functioning as well as structural changes in the brain, and thus the psychological wellbeing of the survivor. Although the debate continues as to the exact influence of the duration of time that has elapsed since trauma exposure on the expression and severity of symptoms, the present study assessed for time since trauma in an attempt to elucidate the impact of empathy and emotional numbing on the relationship between symptom severity and perceptions of social support in survivors.

Corrolaries and Risk Factors for PTSD

Literature has identified numerous risk factors associated with the differential development of PTSD that not only influence the nature and duration of the traumatic sequelea but which also have significant clinical implications. Such corollaries and risk factors typically fall into one of three categories: pre-trauma factors; aspects associated with the trauma itself, including experiences of past trauma; and post-trauma variables.

Thus risk factors across all three categories can be interpersonal, intrapersonal or situational in nature. Given the inconsistency with which PTSD develops following a traumatic event, it is important to consider the factors that may influence the development of posttrauma pathology, both for clinical and research purposes. As such, the present study will collect demographic and trauma-related information concerning each of the following, with one exception, perritraumtic dissociation, in order to control for such factors in analyses.

Pretrauma corollaries and previous experiences of trauma. Predictive factors related to the individual prior to the trauma comprise the broadest of the three risk factor categories. Such includes everything from a genetic predisposition to level of education and even experiences of past trauma and adversity (Keane, Marshall, & Taft, 2006). With regard to demographic factors, sex, age, race, and marital status have all been proposed as having influence of the development and severity of PTSD. Being female, as explored in great detail in subsequent sections, is by far the largest demographic predictor of posttrauma pathology (Breslau, Davis, Andreski, Peterson, & Schultz, 1997). Age at the time of trauma furthermore predicts the nature of PTSD. Some studies have suggested that trauma that occurs at a very young age results in more severe PTSD symtomatology (Cloitre et al., 2009). Yet such studies seem to demonstrate interaction effects with type of trauma and sex. As such other studies predict that women between menarche and menopause are most vulnerable to the development of posstraumatic stress given the mediating role of estrogen on a number of physiological pathways related to autonomic and neurological stress responses (Hayward & Sanborn, 2002).

The influence of race, although somewhat inconsistent in the literature, presents a important consideration in the development of PTSD. Kessler et al. (1995), however, compared racial and ethnic groups in both exposure to traumatic events and development of PTSD. The authors found that Caucasians and Latinos reported higher rates of trauma, yet African Americans, Asian Americans, and Native Americans reported significantly higher rates of PTSD. Ford (2011) further suggests that trauma and posttraumatic stress disorder are particularly epidemic in enthnocultural minority groups. Despite the limited research in this area, studies have examined the influence of oppression and discrimination as potential moderating factors in the development of posttraumatic pathology. Available evidence, especially with regard to historical trauma with Native American populations, is especially striking and brings to light the importance of considering the systemic, cultural, and ecological framework within which the survivor exists (M. R. Harvey, 2007; Hoshmand, 2007; Marsella & Christopher, 2004). As such, oppression and perpetual discrimination in some ways can be seen as prior life adversity which may increase the risk of PTSD. Prior and cumulative trauma also markedly increases the risk of PTSD and may sensitize individuals to later trauma (Briere, Kaltman, & Green, 2008; Kolassa et al., 2010; Schumm, Briggs-Phillips, & Hobfoll, 2006). Such is the basis of the proposed diagnosis of disorders of extreme stress not otherwise specified (Ford, et al., 2006).

Peritraumatic factors. Factors related to the traumatic event also impact the development and severity of PTSD. The severity of the traumatic event has been shown to be one of the strongest peritraumatic predictors of PTSD diagnosis and severity of

symptoms (Brewin, et al., 2000; Norris, Foster, & Weisshaar, 2002). Similarly, perceived life thereat or the feeling that one's life was in imminent danger also serves as a risk factor for posstrauma pathology and symptom duration (Keane, et al., 2006; Ozer, Best, Lipsey, & Weiss, 2003). Furthermore, the strength of this relationship increases as the time since the trauma likewise increases (Ozer, et al., 2003).

Numerous studies have also determined that peritraumatic dissocation (e.g., and altered sense of time or blanking out, an altered sense of self, and disconnection from one's body) was a significant contributor to the development, severity and duration of PTSD symptomatology (Hetzel-Riggin, 2010; Lensvelt-Mulders et al., 2008; Ozer, et al., 2003; van der Hart, van Ochten, van Son, Steele, & Lensvelt-Mulders, 2008). Interestingly, however, information on peritraumatic dissociation is collected in retrospect, a recall of which has been found to be sensitive to time intervals between recall and traumatic exposure (Marshall & Schell, 2002). Such studies therefore have called into question the nature of peritraumatic dissociation in relation to PTSD symptom severity. Given such ambiguity surrounding this construct, information regarding peritraumatic dissociation will not be considered in the context of the present study.

Posttraumatic indices. Social support, in terms of both availability and valence, is by far the most studied posttraumtic corollary of symptom development and severity and overall has one of the strongest effects in relationship to the severity of PTSD (Brewin, et al., 2000; Ozer, et al., 2003). Studies however have drawn into question the direction of this relationship, as will be explored in depth in subsequent sections.

Comorbid Disorders

The literature indicates that the preponderance of practicing therapists do not adequately assess for a history of trauma (Young, Read, Barker-Collo, & Harrison, 2001), which can lead to misdiagnoses, faulty client conceptualizations, perpetuate client self-blame, decrease already precarious feelings of survivor trust, compromise the therapeutic relationship, and ultimately, however unintended, revictimize clients (Frueh et al., 2002; Gold, 2004; Ullman, 1999; Worell & Remer, 2003). Assessment following trauma proves particularly important for counselors and researchers to consider given the frequent co-occurrence of PTSD with other axis I and even axis II disorders. An ability to suggest that symptoms are stemming from the pathophysiology of trauma rather than other intra or interpersonal causal factors has marked implications on both how we understand disorders and thus efficacious clinical interventions.

Individuals experiencing PTSD symptomatology often concurrently experience symptoms of other disorders, most notably substance abuse and major depressive disorder (Ballenger et al., 2000; Brady, Back, & Coffey, 2004). Some studies suggest that as many as 65 percent of individuals with PTSD likewise have Major Depressive Disorder (MDD; T. A. Brown, Campbell, Lehman, Grisham, & Mancill, 2001). A clear understanding and distinction between depression and PTSD within trauma exposed individuals is complicated by an overlap in many of the key diagnostic criteria and corollary experiences of the individuals with the two disorders, with researchers contributing the comorbidity to the shared symptomatology between disorders (O'Donnell, Creamer, & Pattison, 2004). Similarly to experiences of PTSD, depression

has also been linked to a difficulty in experiencing positive emotions and frequent deterioration of interpersonal support (Gros, Price, Magruder, & Frueh, 2012; Joormann & Siemer, 2011). Interestingly, however, a somewhat paradoxical relationship has been found between empathy and depression (O'Connor, Berry, Lewis, Mulherin, & Crisostomo, 2007). The authors conceptualize depression as a "moral system on overdrive" (p. 49) whereby individuals tend to demonstrate elevated levels of empathy and are characterized by an over-concern with the emotions of others. Rather than simply identifying with the emotions of others, however, individuals with major depression often take responsibility or unrealistically blame themselves for the pain others feel, what has been described as an excessive "empathy-based guilt" (p.50). This seemingly incongruous relationship, however, may complicate potential conclusions drawn in the present study related to expressions of empathy in survivors with PTSD, 65 percent of which are projected to also suffer from comorbid depression. Furthermore the two previous studies that have examined the relationship between PTSD and empathy have not elucidated possible confounds between the two disorders nor distinguish between co-presenting individuals (Mazza, et al., 2012; Nietlisbach, et al., 2010). As such, for the purposes of the present study, although such high comorbidity rates preclude screening out of participants based on a present concurrent diagnosis of depression, present experiences with clinical depression will be assessed in order to control for the effects of depression in statistical analyses.

Although less frequent than comorbid depression, survivors of trauma, especially women, likewise frequently experience difficulties with substance abuse, both alcohol

and illicit substances. Women present with concurrent substance abuse and PTSD at rates nearly double that of men, with rates ranging from 30 to 50 percent (Najavits, Weiss, & Shaw, 1997). Multiple theories have been proposed as to the common dual expression, most notably suggestions that substances are used as a form of coping to self-medicate or reduce tension as well as models built upon recent neurological conceptualizations of how both disorders affect the reward-pleasure pathways of the brain (Becker et al., 2007; Brady, et al., 2004; P. J. Brown & Wolfe, 1994; Chilcoat & Breslau, 1998; Hien et al., 2010; Lecea et al., 2006). Evidence has suggested that mood altering substances may exacerbate experiences of emotional numbing and interpersonal difficulties (Bondy, 1996; Dass-Brailsford & Myrick, 2010; Kraus, Baumeister, Pabst, & Orth, 2009). A recent study has likewise suggested that substance abuse, particularly alcohol-dependence, may impair empathic expression (Martinotti, Nicola, Tedeschi, Cundari, & Janiri, 2009). However, given concerns over the extensive number of assessment questions already being used as part of the present study as well as the consistent rather than contradictory (as with depression) influence of PTSD and substance abuse on empathy (both leading to decreases in empathetic capacity), substance abuse will not be considered within the present research paradigm. The influence of substance use on perceptions of social support in individuals with PTSD, however, imparts a valuable avenue for future research.

Neurobiological Theories of Trauma

A comprehensive understanding of the effects of trauma on survivors and the disparate rates at which individuals experience posttrauma pathology and comorbidity is

incomplete without an awareness of the associated neurophysiological underpinnings of such overt reactions. Furthermore the manner in which the body and brain physiologically respond to trauma has considerable implication on apposite clinical interventions. In the case of trauma, a lack of insight into such neurobiological phenomena can actually lead to retraumatizing the client, an especially pronounced concern when working with female survivors of interpersonal trauma.

Various historical and contemporary theories of trauma underscore the rapidly changing field of trauma and have important implications on clinical practice with trauma survivors. Foa and Rothbaum's (1998) *Emotional Processing Theory of Trauma,* Janoff-Bullman's theory of *Altered Assumptive World Views* (Janoff-Bulman, 1989), Litz and Keane's (1989) *Informational Processing Models*, and Brewin's (1996) *Dual Representation Theory* of trauma all offer widely varying perspectives and complex considerations of trauma and treating trauma survivors. At the root of each of these theories, however, lies a host of explicit and implicit changes in neurological and physiological functioning following a traumatic event, a process known as allostatsis (Malta & Stratton, 2012). A growing body of research has begun to explore the neurobiological correlates to traumatic responses and the ramifications of such alterations in brain regions and associated neuroendocrine (i.e., neurotransmitters and hormones) functioning on enduring maladaptive posttrauma functioning. Such allostatic load theories elucidate the importance of considering the neurophysiology of arousal, fear processing, and emotional regulation in modulating social interactions (Malta & Stratton, 2012; Ogden, et al., 2006; van der Kolk, 1994, 2006) and characterize PTSD as a

fundamental dysregulation in arousal modulation, whereby exposure to a traumatic event induces immediate neurochemical correlates that can lead to lasting structural and functional changes in the brain and neuroendocrine system (Cozolino, 2010; van der Kolk, 2006). Neurobiological theories of trauma (Fosha, Siegel, & Solomon, 2009; Levine, 1997; Ogden, et al., 2006; Siegel, 1995; van der Kolk, 1994, 2006) now predominate in the trauma literature and offer considerable insight into both potential trauma responses as well as the critical role of the therapeutic relationship and requisite therapeutic considerations when working with survivors. As such, neurobiological accounts of trauma may provide critical new perspectives of how survivors perceive experiences of social support following trauma and as a result how counselors can best serve this population.

Key Brain Regions Affected by Trauma

To facilitate an understanding of the neurophysiology of trauma, a review of the key brain areas involved will be presented. Following trauma, systemic concomitant changes occur in both cortical (i.e., cerebral cortex) as well as subcortical (i.e., more evolutionarily primitive) brain areas.

Limbic System. The limbic system is one of the primary subcortical networks in the brain. This dynamic system, composed of multiple neural structures, modulates emotion regulation, associated motivated behaviors, and memory formation.

Amygdala. The amygdala is the seat of limbic system and essential in emotional processing and contributing an emotional valence to an experience, particularly emotions related to survival. As such, this region functions largely in the assessment of threat-

related stimuli and fear conditioning but likewise generates emotional responses such as pleasure and anger. In response to assessments of threat, activation of the amygdala initiates allied autonomic responses induced by emotional arousal, namely the fight-or-flight reactions experienced in the face of danger. Amydalar activation therefore has been shown to be positively correlated with PTSD symptom severity as well as to have a reciprocal relationship with activation of the prefrontal cortex in survivors (Protopopescu et al., 2005; Shin, Rauch, & Pitman, 2006). Furthermore, the amygdala has been implicated in implicit or nondeclarative memories that are stored in the form of sensations and emotions (Cahill, 2003), and thus functions in the dual representation of memories in PTSD (Brewin, Dalgleish, & Joseph, 1996) as will be described in a later section.

Hippocampus. A second key region in the limbic system and anatomically adjacent to the amygdala, the hippocampus regulates the formation of new memories, specifically declarative (i.e., fact and event based) and spatial memories. Specifically it is involved in memory consolidation, which is the processing of converting short-term into long-term memories. In response to trauma, survivors have been shown to experience decreased activation of the hippocampus and even decreased hippocampal volume following prolonged stress and PTSD duration (Felmingham et al., 2009). Thus under intense stress the hippocampus is unable to incorporate declarative, factual information into the emotional memory of the traumatic event (Turnbull, 2006). Hippocampal volumes are furthermore inversely associated with deficits in verbal memories, especially in relation to emotional words (Bremner et al., 1995; Bremner et al., 2003). Together

with the prefrontal cortex, the hippocampus has likewise been shown to function in the regulation of the HPA axis (Heim & Nemeroff, 2009). Thus decreased activation of the hippocampus can lead to behavioral disinhibition, emotional dysregulation, and hyperresponsiveness to environmental stimuli (van der Kolk, 2001).

Hypothalamus. The hypothalamus is principally responsible for homeostasis and is vital in the regulation of body temperature, food and water intake, sexual behavior and reproduction, sleep-wake cycles, as well as the release of at least eight key hormones in the body. As such, the hypothalamus, in conjunction with the autonomic nervous system (as will be described in the ensuing section), controls physiological arousal and thus functions as the origin of the "fight or flight" or "fight-flight-or-freeze" responses to acute stress and trauma within both animals and humans.

HPA-Axis and Cortisol. Intimately involved in the stress-responsive functioning of the hypothalamus is a complex cascade of endocrine expression along what is known as the hypothalamic-pituitary-adrenal access (HPA-axis). The HPA-axis regulates the release of the stress hormone cortisol as well as serves as the basis of the analgesia, or insensitivity to emotional and physical pain, often experienced with acute stress. In the face of stress the hypothalamus releases corticotropin-releasing factor (CRF), which signals to the pituitary gland to secrete beta-endorphin and adrenochorticotropic hormone (ACTH). The expression of ACTH then commands the adrenal gland to release cortisol. Once the secretion of cortisol reaches an optimal threshold, the adrenal glands send chemical signals back up to the hypothalamus which induces the hypothalamus to discontinue production of CRF, and thus the supply of cortisol in the system diminishes.

This negative feedback loop is one of the systems that become dysregulated in the face of marked trauma. Although the exact nature of such dysregulation continues to face considerable debate within the neuroscience and neuroendocrinology literature (de Kloet et al., 2006; Klaassens, Giltay, Cuijpers, van Veen, & Zitman, 2012; Liberzon, Abelson, Flagel, Raz, & Young, 1999), the dysregulation as a whole purportedly leads to a flooding of cortisol within the body and ultimately the nervous system becomes sensitized to perceived threats (van der Kolk, 2003). Such sensitization causes survivors to cycle through the spectrum of vigilance, alarm, fear, and terror more rapidly than individuals without posttrauma pathology, engendering the hyperarousal often witnessed in survivors (S. J. Weiss, 2007). Furthermore, the analgesic effects produced by the HPA axis in response to stress have been implicated as one possible basis for emotional numbing in PTSD (Glover, 1992; van der Kolk, Greenberg, Orr, & Pitman, 1989).

Oxytocin. Although the HPA-axis and allied effects of cortisol have taken center stage in research detailing the physiological underpinnings of traumatic responses, researchers have more recently begun to investigate and recognize the equivalent and potentially even more pronounced role of oxytocin in PTSD symptomatology and recovery (Olff, 2012). Similarly to cortisol in the HPA axis, oxytocin is produced within the paraventricular nucleus of the hypothalamus, which extends neuronal projects directly to the amygdala, hippocampus and brainstem (A. Campbell, 2010). Classically known as a hormone or neuromodulator that promotes uterine contractions during birth and facilitates breastfeeding, scientists now understand that oxytocin is essential to the development and fostering of social and intimate bonds far beyond mothering (A.

Campbell, 2010). As such oxytocin has been found to play an integral role in deciphering the emotions of others (Hurlemann, et al., 2010) and assessing interpersonal trustworthiness (Zak, et al., 2004), important determinants in social interactions and perceptions of interpersonal support. Additionally, oxytocin has been found to increase prefrontal cortex activity and decreases amygdala activity, which may improve emotion regulation and decrease avoidance behavior (Olff, et al., 2010). However, in the face of chronic stress theories suggest that this neuromodulator experiences a similar fate to cortisol, whereby initial surges in oxytocin following acute stress may give way to a downregulation of production resulting from the desensitization of the HPA axis (van der Kolk, 2001). Thus, given the palliative effects of oxytocin on social bonding and physiological stress responses, authors have proposed the use of pharmacologic oxytocin to augment and enhance the efficacy of Cognitive Behavioral Therapy (CBT) and exposure therapy with survivors (Olff, 2012).

Although both sexes produce oxytocin and have oxytocin receptors, the neuromodulator is considerably more influential in females as its activity is upregulated by estrogen (Lim & Young, 2006). The exacerbated expression of oxytocin in females in conjunction with findings regarding the role of oxytocin in social bonding, empathy and PTSD symptom expression, such as emotional numbing, have led to the speculation that oxytocin may play a leading role in explaining the higher prevalence rates of PTSD in women, especially women survivors of interpersonal violence. Furthermore, this overlap in the functionality of oxytocin coupled with the dysrgulation of oxytocin in trauma

survivors likewise provides evidence of the potential influence of the pathophysiology of trauma on survivors' perceptions of social support.

Brain stem. Neural projections from the hypothalamus also support the regulation of the autonomic nervous system (ANS) located in the brain stem, primarily the medulla oblongata. The ANS governs survival mechanisms such as consciousness, heart rate, breathing, sexual arousal, salivation, perspiration, urination, sleep wake cycles as well as the functioning of muscles within the face, head and neck. The ANS is classically divided into the sympathetic (SNS) and parasympathetic nervous systems (PNS), complimentary regulatory systems within the body. The SNS directs the preconscious aspects of the flight-or-fight system, mobilizing the system, increasing heartrate and respiration. The PNS on the other hand is responsible for restorative, calming and digestive functions. Theories have likewise postulated that the PNS likewise supports and is intricately involved in social engagement (Porges, 2003b, 2011). When overactive, however, the parasympathetic nervous system can lead to vegetative and dissociative states as well as emotional numbing. The dysregualtion of the autonomic arousal system and the hypothalamic control of the HPA-axis, both of which are influenced by input from the amygdala and hippocampus, serve as the neurophysiologcial foundation of hallmark symptoms of PTSD such as hyperarousal, emotional numbing, dissociation and reexperiencing (Inslicht et al., 2006; van der Kolk, 2003; S. J. Weiss, 2007; Yehuda, 1997, 2006).

Cortical Components. Overlaying the limbic and subcortical structures of the brain is the cerebral cortex, a densely packed area of convoluted brain tissue that is

divided into four structurally and functionally distinct areas (i.e., lobes). Three out of four of these lobes (i.e., the temporal, parietal and occipital loves) principally control sensory (i.e., information coming in from the five senses) perception, movement, and language comprehension. The fourth region of the brain, the frontal lobe, is what distinguishes human from all other species, controlling the executive functions of the brain and allowing humans to put rational meaning to the world around them.

Frontal and Prefrontal Cortex. The frontal lobe, the area of cerebral cortex located just posterior to the forehead extending roughly to the ears, is the largest, most evolutionarily recent lobe of the brain as well as the most complex in terms of its function. Generally speaking the frontal lobe functions in the executive control of neural responding and higher order cognitive processing. It plays a role in problem solving, moral reasoning and value judgments, determining similarities and differences between situations and objects, initiating action and impulse control, regulating emotions, determining appropriate social responses, foreseeing the consequences of actions, and even language, movement and memory. Furthermore, the left side of the frontal cortex contains an area known as Broca's Area, which governs language production. With regard to trauma, it is the prefrontal portion of this brain region, just above the eyes, that yields the greatest influence on posttraumatic responses. The prefrontal cortex as it is termed serves as the primary director of the brain, managing executive control and is the primary source of emotional and social regulation. Within the prefrontal cortex is a region known as the orbitofrontal cortex that has marked implications on interpersonal functioning. This area of cortex not only regulates autonomic responses, it is also

explicitly involved in the regulation of emotion, attuned interpersonal communication involving eye contact, response flexibility and social cognition (Cavada & Schultz, 2000). Following trauma the prefrontal cortex often fails to accurately regulate the limbic and autonomic nervous systems leading to a host of maladaptive social, emotional, cognitive and physical outcomes, such as affective dysregulation, reexperiencing of the trauma, decreased self-monitoring, and purportedly a lack of concern for other individuals.

Cingulate Cortex. The cingulate cortex, part of the limbic cortex and sitting directly above the inner limbic region of the brain and contiguous to the frontal cortex, plays a prominent role in emotion formation, linking sensory information with emotions and social cognition, and thus is hypothesized to be central to socioemotional processing and affective self-regulation. The anterior cingulated cortex (ACC; the forward most section of the cingulate) in particular is thought to play a role in empathy (Decety & Jackson, 2004), in the monitoring and regulating of emotional states and experiential aspects of emotion (Bush, Luu, & Posner, 2000; Devinsky, Morrell, & Vogt, 1995; Frewen et al., 2008; Lane et al., 1998) and reward outcomes to behaviors (Hayden & Platt, 2010). In addition, the anterior cingulate, similarly to the prefrontal cortex, has been found to function in the inhibition of the amygdala (Etkin, Egner, Peraza, Kandel, & Hirsch, 2006) and in fear conditioning (Hamner, Lorberbaum, & George, 1999). Given such findings, the ACC has been implicated as playing an important role in PTSD. Numerous studies have found significant decreases in activation in (Shin et al., 1997; Shin et al., 1999) and smaller cortical volumes (Karl et al., 2006; Woodward et al., 2006)

of the ACC in survivors of trauma with PTSD. The ACC has furthermore been show to show decreased activation during incidences of perceived social exclusion and rejection sensitivity (Masten et al., 2009; Onoda et al., 2009).

Insula. Located deep within the cerebral cortex at the periphery of the frontal and temporal lobes, the insula or insular cortex has only recently been explored in humans (Damasio et al., 2000). Given advances in neuroimaging and electrophysiolgical technology, researchers now hypothesize that the insular cortex functions in polymodal sensory integration, emotional awareness, empathy, interpersonal affiliation, and interoception (Giuliani, Drabant, Bhatnagar, & Gross, 2011; Silani et al., 2008; Singer, 2006; Singer & Lamm, 2009). In essence, the insula serves as a site for emotion-cognition integration, joining bodily sensations with internal emotion-based cognition, thus giving rise to what are experienced as conscious feelings (Damasio, et al., 2000; Gu et al., 2012). Furthermore, non-human primate and postmortem studies have shown that the insula uniquely contains von Economo neurons that function in intuitive, preconscious information processing (Gu, et al., 2012). As such, decreased functioning and volume of the insula, and anterior insula specifically, results in a diminished awareness of not only one's own emotions (e.g., emotional numbing) but also the emotions of others (e.g., empathy). Substantiating such suppositions are studies demonstrating that individuals with alexithymia, a condition characterized by an inability to verbally express internal emotional states, as well as autism, a condition of marked deficits in empathy and interpersonal functioning, both show significant decreases in activation of the anterior insula, exemplifying the shared role of the insula in empathy

and emotional awareness (Bird et al., 2010). Furthermore researchers have consistently found decreased activation of the anterior insula in survivors with posttrauma pathology (Simmons, Strigo, Matthews, Paulus, & Stein, 2009). Taken together, such evidence suggests that due to disrupted functioning of the insula following trauma, survivors may experience not only deficits in emotional awareness, as in emotional numbing, but likewise decrease in perceptions of empathy and allied social functioning. Such findings likewise substantiate the need to examine the manner in which emotional numbing and decreases in empathic capacity experienced as a result of trauma-induced changes in neurophysiology may be distorting perceptions of social support in survivors of trauma.

Dual Processing of Fear

At the onset of a fear-inducing event, the brain processes fear by way of a dual processing system. Under mild stress, information brought in by the senses is channeled through the hippocampus and prefrontal cortex, areas responsible for cognitive processing, memory formation, and emotional regulation, before being sent to the amygdala, an integral structure in emotional processing (LeDoux, 1996). This contextualizes fearful stimuli, allowing the individual to aptly respond. Such becomes the basis of declarative memory, a holistic representation containing both contextual and emotionally salient information (Siegel, 2006). In the face of trauma, sensory information is sent from the senses directly to the amygdala, which in turn rapidly appraises the threat and within a twelfth of a second activates the body's autonomic nervous system (Cozolino, 2010; Shin, et al., 2006). The overactivation of the amygdala inhibits functioning of the hippocampus and affiliated prefrontal cortex, leading to a fragmented

and emotionally-laden memory of the event (Fishbane, 2007; Siegel, 2006; van der Kolk, 1994). Therefore, without declarative and temporal attributes, one's reaction to the trauma becomes an automatic response, replete with nonconscious affective corollaries (Grigsby & Stevens, 2002).

Autonomic Arousal and Social Engagement

The lack of regulation by the prefrontal cortex further results in dysfunctioning of the autonomic arousal system and HPA axis causing continual fluctuations between hyperaroused and hypoaroused physiological states. Such oscillations and autonomic deregulation likely form the basis for emotional numbing and social impairment often seen in posttrauma pathology (Porges, 2003a; van der Kolk, 2006). The effect of the dysregulated arousal system on social functioning is best conceptualized by the Polyvagal Theory (see Figure 1; Porges, 2001, 2003a).

Porges (2011) states that the ANS responds to trauma following a "phylogenetic hierarchy" (p. 155), whereby an individual first responds from the most evolutionarily recent cortical components yet when such fails more primitive structural defense systems are engaged. The ANS is composed of three branches as follows: the sympathetic nervous system (SNS), the dorsal vagal branch of the parasympathetic nervous system (PNS), and the ventral vagal branch of the PNS, each corresponding to an autonomic arousal level, namely hyperarousal, hypoarousal and optimal arousal respectively. When hyperaroused, individuals experience emotional dysregulation, hypervigilance and a reliance on survival mechanisms, whereas in a hypoaroused state, individuals often suffer dissociation, emotional numbing and immobility. The ventral vagal branch of the PNS,

termed the social engagement system (SES), regulates arousal, generating feelings of safety and allowing for the effective use of emotions, and promotes behaviors that enhance social bonds (Fosha, et al., 2009; Porges, 2003b).

When in a balanced state of arousal and functioning from the SES, an individual's parasympathetic nervous system optimizes behaviors that enhance social bonds such as eye gaze, facial expressions, voice tone, social gestures, and even the ability to extract the human voice from background noises by modulating the function of a set of muscles of the inner ear. As such, individuals with PTSD, who fluctuate between hypo- and hyperaroused states, and are not functioning from the SES, may not possess an optimized physiological capacity for supportive social interactions. A recent study detailing the effects of direct eye contact on the autonomic physiology of survivors of trauma with PTSD validates such propositions (Steuwe, et al., 2012). Steuwe et al. found that when compared to individuals without PTSD, survivors of trauma experience threat mediated arousal in areas of the brain associated with the autonomic nervous system when exposed to direct eye contact. Furthermore, research has shown that survivors of trauma have difficulty with affective prosody, or the ability to properly interpret emotional cues in the rhythm, pitch, stress and intonation of language (Freeman, et al., 2009), which may be regulated by dyregulation of the autonomic nervous system and an inability to effectively modulate muscles of the inner ear that detect such variations (Porges, 2003a).

Dysregulation of arousal and the autonomic nervous system, disruptions in memory formation, maladaptive functioning of key cortical and limbic areas of the brain have significant implications on why trauma, interpersonal trauma in particular, has such

a profound influence on female survivors. Such theories also provide essential insights into how female survivors of interpersonal violence, by way of emotional numbing and empathy, may experience disruptions in perceptions of social support, with regard to both availability and valence of that support. Each of the various components that constitute the present study, namely female survivors, interpersonal trauma, social support, emotional numbing and empathy, will each be explored in depth from both a clinical and neurobiological perspective and rationale provided as to the critical interactions between such variables.

Disparities in Trauma Exposure and PTSD among Males and Females

Neurophyiological accounts of trauma can furthermore offer potential bases for the incongruity in the rates at which males and females develop PTSD. The most consistent finding related to the research around the prevalence and course of PTSD are the disparate rates at which males and females experience posttrauma pathology. Although the preponderance of research on PTSD (human as well as animal studies) has employed only male survivors, thereby creating models of the disorder based solely upon males' acute and protracted responses to trauma, women have since been found to be more than twice as likely to develop PTSD, with symptoms lasting over four times as long (Breslau, 2009; Breslau, et al., 1998; Olff, et al., 2007; Tolin & Foa, 2006). PTSD also has varying expressions and corollaries between the sexes. Researchers have proposed both psychosocial and biological explanation to account for the differences, yet to date no one theory predominates in the literature. It is possible however that the growing interest and research in the field of social cognitive and affective neuroscience

(SCAN), a field which examines the shared biological correlates of emotional and psychosocial phenomena, may begin to shed light on the interrelationship between the psychosocial and biological perspectives that model the inconsistencies in prevalence and expression between the sexes (Lanius, Bluhm, & Frewen, 2011).

Prevalence of PTSD

Despite the greater overall frequency with which males experience traumatic events, females are significantly more likely to face enduring impairments to their wellbeing as a result of such experiences. Kessler et al. (1995) determined that men have a greater lifetime prevalence of at least one traumatic event as compared to women (60.7 percent as opposed to 51.2 percent). Men as compared to women also experience on average a greater mean number of exposures to traumatic events (5.3 and 4.3, respectively) across a lifetime (Breslau, et al., 1998; Kessler, et al., 1995). There is a continued distinction, however, in the types of traumatic events to which females and males are exposed. According to Breslau and colleages (1998) females are significantly more likely to be exposed to sexual violence, physical abuse and partner violence, whereas males more frequently experience violent assaults and combat trauma, at nearly twice the rates. More specifically, females are exposed to virtually all forms of childhood and adult interpersonal traumas considerably more often than men, a category of trauma linked to higher prevalence rates of PTSD and more severe symptomatology (Breslau, et al., 1998).

Despite the lower overall rate at which females are exposed to potentially traumatic events, studies have consistently shown that females develop diagnosable

levels of PTSD at least twice as frequently as do males. The National Comorbidity Study found that this pattern holds even when controlling for the type of trauma encountered (Kessler, et al., 1995; Tolin & Foa, 2006). The author indicated that when males and females were both confronted with a violent assault, females developed PTSD at rates nearly 15 times that of males (Kessler, et al., 1995). Furthermore, research substantiates that PTSD pathology lasts significantly longer in females as compared to males, regardless of trauma type (48.1 months versus 12.1 months respectively; Breslau, 2009; Breslau, et al., 1998). Further still, post-pubertal, pre-menopausal women have been found to be at greatest risk for developing PTSD (Hayward & Sanborn, 2002). Interestingly, during this age range, women are likewise more sensitive to stress-induced dysfunction of the prefrontal cortex (Shansky et al., 2003). Thus, being a female, particularly between menarche and menopause, is a significant risk factor for developing PTSD over and above the type of trauma experienced.

Expression of PTSD

In addition to disparities in both the risk for experiencing traumatic events and the rates in PTSD development and duration, the expression of PTSD between males and females likewise frequently diverges. Females with PTSD often endorse more symptoms than do men and more often experience disturbances in emotional awareness and regulation (Amdur, Larsen, & Liberzon, 2000; Frewen, et al., 2010). Females also report greater degrees of emotional numbing, restricted affect and avoidance responses than do males and furthermore experience higher levels of psychological reactivity to traumatic stimuli (Litz, et al., 2000; Orsillo, et al., 2004; Spahic-Mihajlovic, et al., 2005).

Furthermore, authors have remarked that following trauma females experience more traumatic reactions, such as shame, social isolation and diminished feelings of belongingness and affection, that do males (Andrews, et al., 2000; Frewen, et al., 2010). Such reactions frequently seen in females may have pronounced connections to social functioning, yet very little research has examined how these social cognitive responses, especially from a physiological level, directly impact experiences of social support.

Differences are present in the neurophysiological expression of PTSD as well. Functional neuroimaging studies have shown that females with PTSD show greater activation in the brainstem to perceived threat, whereas males demonstrate greater activation of the hippocampus in response to fear (Felmingham et al., 2010). Furthermore, studies have found that females in general have more sensitized HPA axis with lower baseline plasma cortisol levels than do males, and that females with PTSD exhibit marked decreases in urinary cortisol when compared to controls, a pattern not consistently seen in males (Meewisse, Reitsma, De Vries, Gersons, & Olff, 2007). Such findings have considerable implications clinical and therapeutic interventions following trauma, not to mention social functioning and rapport building in the therapeutic relationship, yet very little research has examined how such finding may eventually impact therapeutic approaches to female survivors specifically.

Underpinnings of Disparities

Despite numerous causal theories, no conclusive evidence has substantiated the basis of such disparities between males and females in the development, duration, and expression of PTSD. Researchers have demonstrated that the marked increase in

posttrauma pathology among women occurs even when accounting for type of trauma, trauma violence, perceived threat to life, as well as response bias between genders (Breslau, 2009; Chung & Breslau, 2008). As such, although these factors likely do partially moderate the relationship between trauma exposure and PTSD, it would appear that the sex of the survivor contributes uniquely to the development, severity, and expression of PTSD over and above all other factors. Contemporary explanations of the disparities between males and females look to physiological and biological underpinnings. Researchers have demonstrated that exposure to trauma is associated with enhanced brainstem activity to fearful stimuli in women than in men; thereby suggesting that the HPA axis may be more responsive to (i.e., show elevated responses to) acute and chronic stress in women than in men (Felmingham, et al., 2010). If such is the case, these findings would likewise have implications on the escalated effects of stress on emotional reactivity and numbing, the Social Engagement System and thus the social cognition of women survivors.

Studies using animal models have likewise shown that estrogen levels moderate the functioning of the prefrontal cortex as well as neuronal pathways connecting the PFC and amygdala (purportedly by way of sensitizing the neurons to the effects of epinephrine and norepinephrine) in times of acute and chronic stress. This has been hypothesized to lead to dysfunction of the PFC in regulating amygdalar responses to stress and one potential pathway to explain disparities among males and females in rates of PTSD (Shansky, et al., 2003; Shansky et al., 2010). Such evidence yields rationale as to why women, in whom estrogen is intensifying the breakdown in neuronal connections

between the PFC and amygdala, may experience greater degrees of emotional numbing and hyperarousal following trauma, thereby amplifying potential social cognitive impairments that have been found to accompany PTSD. In addition, differential levels of oxytocin may likewise play a role in the biological underpinnings of sex differences in the development, severity and expression of PTSD. Animal studies again have shown that females release more oxytocin in response to stress than do males, and that estrogen may exacerbate this synthesis and release of oxytocin (Olff, et al., 2010). Together, such findings may suggest that in women under conditions of marked stress an initial oxytocin surge followed by a diminution of oxytocin caused by a dysregulation of the HPA-axis may not only contribute to a greater prevalence and severity of PTSD but also may be the underpinnings for decreases in empathy and the erosion of social relationship experienced in survivors of PTSD.

Interpersonal Trauma and Posttraumatic Stress Disorder

The interpersonal nature of some traumas (i.e., sexual assault and partner violence) can have a pronounced effect on the expression and outcomes of PTSD. According to the World Health Organization, interpersonal violence entails the intentional use of force or power, threatened or actual, which leads to injury, death, psychological harm, poor development and/or deprivation (World Health Organization: Violence Prevention Alliance, 2010). Such expressions of power include physical, sexual, psychological violence or aggression as well as neglect, and can occur across the lifespan within the context of the family or community by either an acquaintance or a stranger. Specifically, interpersonal violence is defined as trauma arising out of "human design"

(American Psychiatric Association, 2000) or more specifically violence or threat thereof induced intentionally and directly by another individual (Charuvastra & Cloitre, 2008; Weaver & Clum, 1995). The intentionality specification in the definition rules out vehicular and mechanistic violence, and combat trauma, although predominately involving intentionally induced violence, is often considered a discrete class of trauma (Weaver & Clum, 1995).

Acts of interpersonal violence such as sexual assault and partner violence are associated with not only a greater conditional risk for PTSD but also higher levels of overall PTSD symptom severity (Kessler, 2000). Furthermore, female survivors of interpersonal violence in particular develop PTSD at a rate six times higher than do males, manifest more symptoms of PTSD, with symptoms being more severe (Breslau, et al., 1998; Kessler, 2000). Authors have hypothesized that such disparities in the aftermath of interpersonal trauma may be related to women deriving a greater sense of well-being and personal meaning from an ability to develop and maintain relationships (Cloitre, et al., 2002). Similarly, Ullman and Filipas (2001) hypothesized that it is "perhaps the personally intrusive nature of rape is what makes it uniquely traumatic" (p. 370). Furthermore, 62 percent of almost three million attacks on American women were made by persons whom they knew, while only 37 percent of the nearly four million assaults on males were perpetrated by known assailants (van der Kolk, 2003). Attacks by known individuals increase feelings of shame, which has been associated with higher levels of PTSD (Leskela, 2002; Andrews 2000). Further still shame is often conceptualized as a loss of empathic attunement and has been found to harm interpersonal functioning (J. V.

Jordan, 1997; Leith & Baumeister, 1998). Such theories suggest that experiences of sexual and partner violence may have marked effects on the manner in which survivors experience social connections and perceptions of social support.

The risk for developing PTSD increases directly with cumulative experiences of interpersonal violence (Schumm, et al., 2006). Research clearly indicates that interpersonal violence, particularly among women, tends to reoccur across the lifespan. Female survivors of sexual abuse, including those who witness familial violence as a child, are at a pronounced risk for future interpersonal victimization (Bensley, et al., 2003; Bouvier, 2003; Classen, et al., 2005; Cloitre, Tardiff, Marzuk, Leon, & Portera, 1996; Hanson et al., 2006; Laporte, Jiang, Pepler, & Chamberland, 2011; Smith, White, & Holland, 2003). Research suggests that two out of three survivors of sexual victimization will be revictimized later in life (Classen, et al., 2005). Furthermore, women who experienced childhood sexual and physical maltreatment are over 11 times more likely to be victimized in adolescence or as an adult (Bensley, et al., 2003).

In explaining the propensity for such revicitimization, some researchers have purported that the development and severity of PTSD may mediate repeated experiences of victimization, or in other words the PTSD symptoms experienced by survivors cause these women to become more susceptible to later victimization (Classen, et al., 2005). Some theories even suggest that PTSD resulting from earlier interpersonal traumas may influence, particularly by way of emotional regulation and numbing, the manner in which social information and social cues are neurologically processed and thus interpreted (Lemerise & Arsenio, 2000). Such findings have led some research to suggest that

survivors of cumulative childhood and adult violence should be considered separately from other forms of interpersonal violence (Faergemann, et al., 2010). However, given the high potential for revictimizaiton across the lifespan and taking into consideration the scope of the current study, locating and assessing survivors of adult sexual and partner violence who do not have a history of childhood sexual abuse would have been challenging in the present investigation. Data regarding childhood victimization, however, will be collected and trends in this subsample explored, thus yielding potential implications for future research.

Sexual Assault Survivors

The definition of what constitutes sexual assault, however, is an important consideration in the research and practice surrounding sexual assault and has shifted over time especially when faced with debates surrounding what constitutes coercion and consent. Although the definition remains inconsistent in its details across disciplines, with frequent discrepancies between legal, practice and research-related conceptualizations, the United States Department of Justice Office of Violence Against Women (2012), defines sexual assault as the following:

> … any type of sexual contact or behavior that occurs without the explicit consent of the recipient. Falling under the definition of sexual assault are sexual activities as forced sexual intercourse, forcible sodomy,… fondling, and attempted rape.

The assessment of sexual assault in the present study using a modified version of the Stressful Life Events Screening Questionnaire (Goodman, Corcoran, Turner, Yuan, & Green, 1998) aligns closely with this definition. Although sexual assault can likewise

occur in the context of childhood maltreatment, the present study assesses Adult Sexual Assault (ASA) or assault that has occurred during adulthood and young adulthood. The importance of having a comprehensive and affirming manner in which to define and assess for sexual violence is reinforced by studies consistently demonstrating that disclosure rates are heavily influenced by the manner in which a clinician or researcher defines and thus assesses for sexual assault (Koss, 1993). Disclosure of sexual assault in research and clinical settings is integral to developing a clearer understanding of just how profoundly such experiences affect the individual and how counselors and practitioners can best help survivors.

"Rape is a life event that causes considerable upheaval in a victim's psychological functioning for…perhaps the rest of her life" (pp. 234-235; Resick, 1993) Nearly 12 million American women will experience PTSD in their lifetime due to the ravaging aftermath of adult sexual assault (ASA), making this category of interpersonal violence the most common precipitants of PTSD among women in the United States (Foa & Rothbaum, 1998; Rothbaum, Astin, & Marsteller, 2005). Furthermore, a recent study by Kelley et al. (2009) found that survivors of sexual assault had higher symptom severity across all symptom clusters, most notably Cluster C symptoms of avoidance and emotional numbing, than did survivors with PTSD resulting from non-interpersonal trauma. In addition to PTSD, a significant proportion of women survivors of sexual assault face many other deleterious physical and mental health outcomes such as physical injury, sexual dysfunction, irritable bowel and chronic fatigue syndromes, depression, generalized anxiety disorder, suicidality, substance abuse, cognitive disturbances (e.g.,

marked shame, guilt, hopelessness and decreased self-esteem), and later interpersonal difficulties, including difficulties with intimacy (Briere & Jordan, 2004; Rebecca Campbell, Dworkin, & Cabral, 2009; Cloutier, Martin, & Poole, 2002; L. J. Cohen & Roth, 1987; Culbertson, Vik, & Kooiman, 2001; Dunmore, et al., 2001; Foa, et al., 1995; Golding, 1999b; Harris & Valentiner, 2002; Luce, Schrager, & Gilchrist, 2010; Najdowski & Ullman, 2009; Resick, 1993; Ullman & Filipas, 2001; Zoellner, Foa, & Brigidi, 1999). Such devastating effects have lead some theorists to assert that sexual assault is one of the "most severe of all traumas" (p. 3; Rebecca Campbell, et al., 2009).

Researchers have reported however that perceived social support and coping style have marked implications on mental and physical health of sexual assault survivors, most notably the severity and course of PTSD symptomatology. Ullman (1999) provided a comprehensive review of how social support influences survivors in the aftermath of sexual assault. The author, grounding her conclusions in Cohen and Willis' (1985) buffer hypothesis of social support, suggests that postassault support leads to reductions in postassault pathology, as the survivor is able to use her social network for tangible aid, information, and emotional support. Ullman (1999) likewise concludes that the availability of positive posstassault support may provide validation of the survivor's experiences and feelings and assist the survivor in cultivating meaning in the experience, and may benefit wellbeing even years following the assault. As stipulated however it is also the case that given the maladaptive physiological reactions of trauma survivors, that the directionality of this relationship may be inversed, whereby greater PTSD symptom severity leads to altered perceptions of and receptivity to available social support.

Conversely, however, Ullman and others have also illuminated the potential deleterious effects of perceived social support on sexual assault survivor wellbeing and recovery (R. Campbell et al., 1999; R. Davis, Brickman, & Baker, 1991; Ullman, 1996, 1999; Ullman & Filipas, 2001). These authors collectively concluded that although perceived social support can indeed be positive, either intentionally or unintentionally, support persons may also respond negatively to the survivor, such as through blaming, dismissal, or insensitivity, which may in turn lead to greater PTSD severity and potentially lasting negative repercussions on a survivor's overall mental and physical health. Ullman (1999) surmised several potential pathways by which negative social support may lead to greater severity of maladaptive mental health outcomes. Once such pathway suggests that negative reactions from support individuals engender survivors to withdraw socially to avoid negative responses and engage in greater avoidance coping.

Avoidance coping has been defined as cognitive and emotional activities, volitional or preconscious, that orient a survivor away from perceived threat (S. Roth & Cohen, 1986), which would by nature include emotional numbing. Authors have distinguished avoidant coping as a distinct construct over and above avoidant symptomatology used for diagnosis in the DSM (Leiner, Kearns, Jackson, Astin, & Rothbaum, 2012), and found that rape survivors typically demonstrate greater avoidance coping emotions and behaviors. Authors have also determined that the degree of stigma associated with the experienced trauma, such as sexual assault, leads to greater avoidance coping (Littleton & Breitkopf, 2006). Furthermore, numerous studies have found that avoidant methods of coping are associated with greater symptom severity, lower

perceived social support, and a more protracted recovery (Leiner, et al., 2012; Littleton & Breitkopf, 2006; Ullman & Filipas, 2001; Ullman, Townsend, Filipas, & Starzynski, 2007). Although the authors hypothesize that negative social reactions and lower levels of support lead to avoidance coping, it in turn may also be the case that emotional numbing, often described as a form of avoidance coping (e.g., emotional disengagement as a means of distancing oneself from aversive emotional experiences or reminders of the trauma), and associated decreases in empathy may very well influence perceptions of available support, and that it is not the coping method per say that leads to the increase in symptom severity, but the baseline symptom severity which causes greater emotional numbing (i.e., avoidance coping).

Survivors of Partner Violence

One in four women will experience violence at the hands of an intimate partner at some point in her life (Tjaden & Thoennes, 1998), rates nearly equivalent for females in both same and opposite sex partnerships (Alexander, 2002; McClennen, 2005; Owen & Burke, 2004). Intimate partner violence (IPV) is the leading cause of serious injury to women in the United States and is one of the most impairing forms of violence against adult women (Grisso et al., 1991; Stein, Walker, & Forde, 2000). Researchers define IPV as physical, sexual, or psychological maltreatment by an a current or former intimate partner such as spouse, boyfriend or girlfriend, or dating partner (Coker, Williams, Follingstad, & Jordan, 2011). More specifically it has been conceptualized as battering or "a process whereby one member of an intimate relationship experiences psychological vulnerability, loss of power and control, and entrapment as a consequence of the other

member's exercise of power through the patterned use of physical, sexual, psychological and/or moral force" (p.2; Smith, Danis, & Helmick, 1998). Therefore the violence and battering that women endure in the context of intimates relationship can take on any constellation of physical, sexual or psychological (emotional) power, aggression and subjectification (Blasco-Ros, Sánchez-Lorente, & Martinez, 2010). Murray, Mobley, Buford, and Seaman-DeJohn (2007) define the three types of violence in the following manner:

1) *Physical violence* comprises both attempted or inflicted bodily injury,
2) *Sexual violence* denotes, "forcible acts of a sexual nature that perpetrators use to assert or sustain their supremacy over their partners" (p. 11), and
3) *Psychological violence* incorporates the degradation of or attempts at disrupting the emotional or mental wellbeing of a partner, through either words or actions (e.g., shaming, belittling, insulting, manipulating, social isolation, economic control, and threatening), as a means of inciting fear and powerlessness in the partner.

Very rarely does any one type of violence occur in isolation from the others, most notably physical and sexual violence. Yet even outside of the distinct acts of violence themselves, IPV is characterized by a pervasive fear and threat of impending and repeated harm (Stark, 2007). This relentless anticipation of harm is considered a distinguishing factor of survivors of IPV both behaviorally and neurologically (Simmons et al., 2008). Essentially the victimization is never-ending and often perpetuates even after the survivor escapes the situation (Woods, 2000). Although the literature describes

various categories of battering relationships (e.g., Coercive Controlling Violence, Violent Resistance, Situational Couple Violence, and Separation-Instigated Violence) with regard to the motivation and source of the violence (Kelly & Johnson, 2008), such a differentiation will not be made in the present study. To the present researcher's knowledge no study has yet to elucidate or even investigate any potential neurophysiological differences that may arise from such distinct categories of IPV, and thus for the purposes of the present study, any form of violence of physical, sexual or psychological violence experienced within the context of a present or former intimate partnership, irrespective of category, will be considered collectively.

The pervasive, iterative violence experienced in IPV has myriad deleterious consequences on survivors' mental and physical health (Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008). PTSD is one of the most prevalent mental health outcomes of IPV, with estimates suggesting that as many as 64 to 84 percent of the women exposed to IPV have clinically diagnosable PTSD (Cascardi, Daniel O'Leary, & Schlee, 1999; Golding, 1999a). For such survivors, the intensity of the abuse yields a direct relationship with the severity of PTSD symptoms (Woods, 2000). Studies have likewise investigated the effects of each type of violence on posttrauma pathology and suggested that concurrent sexual and physical IPV was more predictive of PTSD than either in isolation and that sexual violence severity explains a greater proportion of the variance in PTSD acuteness over and above that explained by the severity of experienced physical violence (Bennice, Resick, Mechanic, & Astin, 2003). Other researchers have found that psychological IPV was a stronger predictor of both fear (Sackett & Saunders, 1999) and

posttrauma pathology (Pico-Alfonso, 2005) than physical violence. Furthermore survivors seeking professional mental health counseling were found to have more severe PTSD symptoms (Coker et al., 2002). Currently a dearth of evidence exists to substantiate potential characteristic differences in PTSD expression or prevalence in same versus opposite sex partners. However, one notable characteristic in the PTSD symptomatology experienced by survivors of IPV, unique to the general population, is that symptoms of emotional numbing appear to increase in severity following repeated incidents of violence (Krause, Kaltman, Goodman, & Dutton, 2006). The authors furthermore speculated that increases in numbing may even lead to survivors being less equipped to detect and respond to experiences of threat within the partnership (Krause, et al., 2006). Such evidence suggests that the numbing experienced in survivors of IPV who endure repeated situations of violence and aggression may be more pervasive than survivors of single-incidence victimization.

Similarly to other types of trauma, social support has also been found to mediate the relationship between IPV and PTSD (Beeble, Bybee, Sullivan, & Adams, 2009; Bosch & Bergen, 2006; Coker, et al., 2002; Coker, Watkins, Smith, & Brandt, 2003). Social support is thought to alleviate the considerable isolation women experience in IPV situations, is significantly correlated with women seeking outside interventions, and serves as a predominate factor in women escaping the violent relationship (Bosch & Bergen, 2006). Other researchers however have denoted the impact that IPV can have on future relationships and on social cognitive constructs such as self-efficacy that may influence perceptions of interpersonal relationships (Bauman, Haaga, & Dutton, 2008;

Dutton, 1992). For example, Dutton (1992) described a tripartite account of the sequelae of intimate partner violence including psychological symptoms such as PTSD, cognitive changes regarding attributes and attitudes, and disturbances in relationship skills (e.g., trust, closeness) beyond the abusive relationship. Although social support is indeed a vital determinant in the wellbeing of survivors of IPV, nevertheless it is possible that the pathophysiology induced by the iterative experiences of violence and aggression may alter the ability for survivors to recognize the presence and positive intentions of such support when it is available. This has striking implication on how we therapeutically support survivors. If survivors of IPV cannot easily discriminate beneficent offers of support, counselors must then take a step back and work to improve regulation of the autonomic nervous system, thereby restoring emotional regulation and social engagement, which in turn may enhance the empathy and support felt in both the therapeutic and social relationships.

The Role of Social Support in Posttraumatic Stress Disorder

Social support has been shown to have one of the most consistent and powerful relationships with both the development and course of posttraumatic stress symptomatology. From the earliest research on social isolation (Harlow, Dodsworth, & Harlow, 1965), failure to thrive (Elmer, 1960) and attachment (Ainsworth, 1989; Bowlby, 1988b) and the later implications of such work (Dykas & Cassidy, 2011; Schore, 2001), it is clear that starting from the moment an individual is born and continuing across the lifespan social interactions and social functioning have vital implications on human development and wellbeing. Social connection and support furthermore embodies the

essence and foundation of psychotherapy (Herman, 1992b; Rogers, 1956). Research however continues to elucidate the intricate connection between social interactions and human psychological and physiological functioning.

Defined as "those social interactions or relationships that provide individuals with *actual assistance* or that embed individuals within a social system *believed to provide* love, caring, or sense of attachment to a valued social group or dyad" (p. 121; Hobfoll, 1988, as cited in Norris & Kaniasty, 1996), social support has been extensively studied across myriad health disciplines and found to be salubrious to both physical and mental wellbeing, particularly after stressful life events (S. Cohen & Wills, 1985; Kessler & McLeod, 1985; Langford, Bowsher, Maloney, & Lillis, 1997). Perceptions of social support have even been found to correlate positively with optimism about one's current and future life situation (Sarason, Levine, Basham, & Sarason, 1983). The Buffering Hypothesis (S. Cohen & McKay, 1984) of social support and Social Baseline Theory (Coan, 2010) are two of the most widely accepted theories of the beneficent role of social support on wellbeing. Both theories posit that the presence of interpersonal social support serves to diminish and even inhibit intrapersonal distress in the face of psychological stressors. Coan's (2010) social baseline theory suggests a mechanism behind this action, namely that such support actually functions to regulate emotions and calm the autonomic nervous system. Although these theories can be and are frequently applied to posttraumatic reactions, and do provide valid accounts for one possible mechanism through which social support and stress interrelate, they were not developed specifically

to explicate the relationship between social support and posttraumatic pathology and thus additional pathways of influence following trauma may likewise be feasible.

The relationship between social support and posttrauma pathology has proven quite complex and faces increasing debate in the literature. Meta-analyses have established that the availability and quality of social support are two of the largest predictors of PTSD pathology (Brewin, et al., 2000; Ozer, et al., 2008), with decreased or minimal social support leading to an increase in the number of PTSD symptoms and longer symptom duration (Andrews, et al., 2003). Evidence has furthermore suggested that this relationship is even stronger both in women and in survivors of impersonal violence (Andrews, et al., 2003; Brewin, et al., 2000; Charuvastra & Cloitre, 2008; Ozer, et al., 2003).

Other studies, most prominently studies of combat veterans returning from deployment, have examined the impact of PTSD on family functioning and romantic partnerships. In such studies, survivors with PTSD were consistently found to experience increases in interpersonal stress, greater marital dissatisfaction, and more difficulties in parenting than veterans without PTSD (B. K. Jordan et al., 1992; MacDonald, Chamberlain, Long, & Flett, 1999; Verbosky & Ryan, 1988). Moreover researchers examined the relationship between the various symptom clusters of PTSD and the decreased social functioning and determined that the avoidance and numbing cluster C demonstrated the strongest negative correlation with martial quality (Riggs, Byrne, Weathers, & Litz, 1998). Such findings have led researchers to recently draw into question the directionality of the relationship between PTSD and social support,

alternatively proposing that in fact PTSD symptom severity, chiefly specific clusters, may very well predict the perceived availability and valence of social support (King, et al., 2006; Laffaye, et al., 2008). Authors endorsing an *erosion model* of social support, indicate that the cross-sectional nature of many of the studies of social support and PTSD have complicated an understanding of the relationship between these two factors (King, et al., 2006).

An interesting distinction, however, has been made in the literature surrounding the impact of social support on the wellbeing of trauma survivors, namely between *received* and *perceived* support (Norris & Kaniasty, 1996). Received support refers to support that has already taken place, the explicit actions and helping behaviors that have already occurred as well as the quantity and structure of the support network, whereas perceived support is the anticipation that such actions or behaviors will occur or be helpful or available when needed. Paradoxically, it is not the verifiable received support that has proven significantly beneficial in alleviating psychological distress or improving physical maladies, but instead the belief that such support exists (Norris & Kaniasty, 1996). A similar distinction is made between *functional* and *structural* social support, whereby structural support details the external, objective aspects of the survivor's social network, such as the size and complexity of the support network and the actual support provided, and functional support details the survivor's perceptions of social interactions as helpful (Murrell, Norris, & Chipley, 1992). Similarly to Norris and Kaniastry (1996), Murrell et al. (1992) found that the perceptions of support and not the actual size or support provided, positively influenced mental health.

As such, the preponderance of studies examining the relationship between social support and PTSD symptom severity focus solely on perceptions of support. The difficulty with measuring perceptions, however, are that such beliefs can be heavily influenced by preconscious and even physiological factors, such as the case of perceived threat in survivors of PTSD. Such a concern is even more striking given that the majority of the social information that an individual takes in from her senses (e.g., body language, facial expressions, voice tone) is cognitively processed at a preconscious level (Charuvastra & Cloitre, 2008). For example, eye contact is considered to be a foundational component to social interactions and integral to social cognitive constructs such as empathy(Baron-Cohen, 2005; Conty, N'Diaye, Tijus, & George, 2007). Interestingly, however, recent functional magnetic resonance imaging research found that when compared to individuals without PTSD, survivors of trauma experienced threat mediated arousal in areas of the brain associated with the autonomic nervous system when exposed to direct eye contact (Steuwe, et al., 2012). Thus, counselors who are trained to use nonverbal behaviors such as eye contact to foster feelings of empathy may very well inadvertently be signaling threat in survivors of PTSD. Despite such potential confounds, considerable research denotes the importance of both perceived availability and valence of support when working with survivors of interpersonal violence.

Availability of Social Support.

The foremost area of research in the relationship between symptom severity and perceived social support elucidates the importance of the perceived availability of support. The perceived availability of support refers to the belief that helping behaviors,

which can take the form of emotional, material and interpersonal support, will be provided when needed (Hobfoll & Lilly, 1993; Norris & Kaniasty, 1996). Using both prospective and retrospective study designs, numerous studies have documented the relationship between a perceived lack of support and the onset and severity of PTSD symptoms among a broad range of trauma survivors, such as survivors of combat trauma (Boscarino, 2006; Pietrzak et al., 2010), motor vehicle accident (Clapp & Gayle Beck, 2009), and traumatic grief (B. Wagner, Keller, Knaevelsrud, & Maercker, 2012), as well as interpersonal traumas in childhood and as an adult, namely childhood maltreatment (Vranceanu, Hobfoll, & Johnson, 2007), sexual assault (Ahrens, Cabral, & Abeling, 2009; Ullman, 1999) and partner violence (Coker, et al., 2002; Coker, et al., 2003). Examining the perceived availability of support from both formal (e.g., first responders, medical staff) and informal (e.g., family, partners, friends) sources, researchers have noted that social support appears to serve as a form of coping mechanism among survivors (Thoits, 1986). Moreover, correlations have been found between low perceived availability of social support and avoidance coping such as emotional numbing and social withdrawal (H. J. Irwin, 1996; Runtz & Schallow, 1997; Ullman, 1996).

The directionality of this relationship, however, has been drawn into question, with authors beginning to speculate that impaired social interactions may be in part the result of impaired perceptions of one's own feelings as well as skewed perceptions of others' feelings and experiences (Andreas Maercker & Müller, 2004; Nietlisbach & Maercker, 2009). Researchers have furthermore directly shown that greater emotional numbing is predictive of decreased perceptions of social support and social

embeddedness in male and female survivors (J. M. Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Riggs, et al., 1998; Yoshihama & Horrocks, 2005). As such, availability of social support would not necessarily be marker of healthy coping, but a decreased perception of support may conversely signify more maladaptive coping, restricted emotional expression and impaired social cognition brought on by posttrauma pathophysiology. For example, researchers have found a relationship between feelings of shame and lower perceptions of peer acceptance and the availability of close friendships (Feiring, Rosenthal, & Taska, 2000). Other researchers have noted that shame and *perceived* social rejection, variables noted to be in response to perceived threats to the social self, are significantly associated with alterations in the functioning of the HPA axis and a disrupted release of cortisol in the system (Dickerson, Gruenewald, & Kemeny, 2004). Others authors have found that empathy is essential to successful social functioning (Bailey, Henry, & Von Hippel, 2008; Baron-Cohen & Wheelwright, 2004) and that levels of empathy can become impaired in individuals experiencing posstraumatic reactions (Mazza, et al., 2012; Nietlisbach, et al., 2010). Furthermore, neuroevolutionary reports of empathy suggest that lower levels of empathy are correlated with lower levels of oxytocin and altered functioning of the HPA axis (Decety, 2011; Olff, 2012). Taken together such evidence again substantiates the plausible influence of alterations in neurophysiology on perceptions of social interactions, namely support and the converse of support, rejection or exclusion.

Valence of Social Support

Although markedly less understood and less comprehensively studied than perceived availability of support, the perceived valence (i.e., positive versus negative versus neutral) of the anticipated support likewise plays a role in the course of posttrauma pathology. Even if a woman possesses a strong global system of support for general life circumstances, such support can fail following disclosure of interpersonal trauma, most notably sexual or partner violence (Ullman, et al., 2007). From the perspective of actual, received support, women survivors frequently face negative reactions to disclosure and are often treated with disbelief, blame, disapproval, cultural and/or religious reproach, as well as clinical and legal mistreatment and abandonment. Such actions and opinions may be either overt or preconscious on behalf of the responder and can be derived from malice as well as misunderstanding. Even counselors or healthcare practitioners, all with good intentions, can revictimize survivors by way of how and when they introduce questions or therapeutic interventions meant to support the survivor (Ahrens, et al., 2009; Ullman, 1999; Worell & Remer, 2003). Negative support such as this, whether intentional or unintentional, can have debilitating effects on both the mental and physical wellbeing of survivors (Borja, Callahan, & Long, 2006; Ullman, 1999), and can lead to difficulty for the survivor in developing future therapeutic relationships with mental health practitioners (Keller, Zoellner, & Feeny, 2010).

Complicating such results however are survivors' *anticipated perceptions* of such valence, such as anticipated rejection or exclusion (Andreas Maercker & Müller, 2004).This distinction is rarely made explicit in the literature, but the implications of such

a distinction has pronounced implications on a clear understanding of the relationship between social support and PTSD. Maercker and Muller (2004) suggested that survivors are likely extremely sensitive to how others react to them. The authors continued by speculating that if survivors perceive interactions as negative or as social rejection, exclusion or blame, maladaptive physiological and psychological responses to trauma may be intensified, leading to increased avoidance or emotional numbing and thus a perpetuating the cycle.

The fact that female survivors of rape and partner violence face severe negative reactions from both individuals and society is without question, nevertheless it is likewise possible that exacerbating such experiences are the survivors' anticipated perceptions of negative responses and even rejection potentially arising from pathophysiology and allostasis following trauma. As such, not only the perceived avalibility but also the perceived valence of social support can have notable implications on functioning, with negative associations and perceived rejection leading to greater symptom severity (Andreas Maercker & Müller, 2004; Ullman & Filipas, 2001).

Noting the importance of survivors' perceptions of the quality of interpersonal reactions and support, the Maercker and Muller (2004) asserted that a dearth of representative assessments relevant to multiple forms of interpersonal trauma exists, which measure how supportive survivors perceive their interpersonal environment to be after a traumatic incident. Although research by Ullman (1996), elucidating the powerful influence of received negative social reactions on recovery from sexual assault, led to the development of the Social Reactions Questionnaire, this assessment measures actual

received responses following disclosure only for survivors of sexual assault. Consequently Maercker and Muller (2004) developed the Social Acknowledgment Questionnaire, the only such scale to measure perceived acknowledgment as a victim or survivor (i.e., negative/disempowering or positive/empowering support) across various types of interpersonal trauma. Social acknowledgement is considered a broader context of social support that addresses a trauma survivor's perceptions of society's and individuals' responses to her trauma.

Directionality of the Relationship

Multiple theories have been proposed to elucidate the complex and multifaceted relationship between PTSD and social support. Although earlier investigations of social support found evidence in support of Cohen and Wills (1985) buffering hypothesis, which when applied to incidents of trauma proposes that the presence of supportive individuals and resources buffer experiences of peri- and posttraumatic stress thereby alleviating psychological suffering. Although this model holds validity in physical and mental health literature, theorists, in recognizing the complex nature of social support, have furthermore established that even in the presence of viable supportive resources an individual must be willing to engage in her social network in order for such resources to prove beneficent (Vaux, Burda, & Stewart, 1986). Other authors have speculated that it is through the erosion of perceived support that major stressful life events may exert deleterious effects on the survivor (Norris & Kaniasty, 1996).

Erosion Model of Social Support

Such was the basis for a proposed erosion model of social support (King, et al., 2006). King et al. argued that a reliance on cross-sectional studies has limited an understanding of the complex relationship between these two constructs and that it is perhaps the interpersonal difficulties experienced by survivors that lead to an erosion in the availability and quality of support. In recognizing this quandary, the authors examined the longitudinal, cross-lagged relationship between PTSD symptom severity and social support using structural equation modeling. Interestingly the authors determined that PTSD symptom severity at time one significantly predicted social support at time two (five year lag), but that social support at time one was not predictive of PTSD symptom severity at time two (King, et al., 2006). Such evidence suggests that rather than social support predicting PTSD severity, in fact, severity of symptoms leads to lower perceived availability and valence of social support. Such findings have since been substantiated by similar studies examining the longitudinal relationship between PTSD symptom severity and perceived social support. Laffaye, Cavella, Drescher, and Rosen (2008) determined that the severity of PTSD symptoms when participants were first assessed significantly predicted the deterioration of perceptions of social support six months later. Again, however, initial perceptions of social support did not predict improvements in PTSD symptomatology after six months. Although the interval between assessments was considerably shorter, these findings continue to implicate directionality to the relationship between perceptions of social support and PTSD symptom severity. Contrary to popular literature which suggests that the degree of positive social support in

survivors' lives following trauma serves as a protective factor against PTSD, the results of such studies seem to suggest that the severity of the PTSD may in fact lead to decreased interpersonal support or perceptions thereof. What has yet to be elucidated, however, is whether it is in fact the interpersonal support itself that deteriorates or whether it is the perceptions of support that are most affected. Although this question is rather nuanced and the relationship quite complex, the authors again used self-rated assessments of perceived emotional and functional social support and did not elucidate how the perceptions of support may be influenced by the underlying pathophysiology, merely suggesting instead that survivors may be "driving away" (p. 2987) their social support network and that clinical efforts should focus on teaching survivors interpersonal skills (King, et al., 2006). It is indeed the case that the interpersonal difficulties to which the authors elude may erode relationships, yet it is also feasible that the allostasis experienced by survivors alters perceptions and feelings of support which may then diminish social bonds, as suggested by the recent finding indicating that direct eye contact induces physiological threat responses in survivors with PTSD (Steuwe, et al., 2012). Findings of this nature would suggest that clinical approaches should focus not on interpersonal skills directly, but should take a step back and first assist a survivor in reestablishing an adaptive regulation of the autonomic nervous system and a healthy understanding and relationship with her emotions and the emotions of others. A comprehensive understanding of the relationship between PTSD severity and perceptions of social support thus must include a concurrent examination of physiological correlates

that may impact perceptions of support. Such an investigation, however, has not yet been conducted and gives way to the premise of the present study.

Emotional Numbing in Response to Trauma

Research consistently demonstrates that emotional numbing plays an integral role in the development and maintenance of posttraumatic pathology and may have pronounced affects on perceptions of social support. Emotional numbing is generally understood to mean a restricted range of affect or a limitation in the capacity to feel and express emotions (Litz & Gray, 2002), with the DSM formally operationalizing this using the following three nosological criteria: a markedly diminished interest in significant activities; feelings of detachment or estrangement from others; and a restricted range of affect (American Psychiatric Association, 2000).

Notwithstanding such characterizations, the exact definition, origin and function of emotional numbing in this process has been a matter of considerable debate, whereby emotional numbing has been considered to be the most understudied and least understood aspect of PTSD (Litz & Gray, 2002). A clear understanding of emotional numbing therefore necessitates insight into the role of emotions in general to the wellbeing of the individual. According to functionalist theories, emotions mediate one's connection with the outside world, providing information concerning personally relevant and important events (Frijda, 2000; Orsillo, et al., 2004) . As such, emotions function in establishing, maintaining or disrupting one's relationship with his or her environment and others within that environment (Orsillo, et al., 2004). Furthermore, although the two are intimately intertwined, feelings and emotions represent two distinct neurological and

psychological processes. Feelings are the cognitive and linguistic representations of emotions, whereas emotions are the often preconscious, physiologically induced changes in the body (Damasio, 2001). This however is the subtle distinction made when literature references an individual's ability to perceive (emotion) and express (feeling) emotions. Moreover, these two constructs are controlled by separate regions of the brain. Feelings are processed largely by the frontal and prefrontal cortex and emotions are processed by deeper limbic regions of the brain. In fact, these cognitive conceptualizations (e.g., words thoughts) that characterize feelings can actually serve to down-regulate limbic reactivity to the physiological emotion in the presence of fear (Hariri, Bookheimer, & Mazziotta, 2000). Yet, the interplay between physiological emotions and cognitive constructs given to those emotions together give rise to how an individual interprets and responds to his or her environment. Thus, an individual could have difficulty in perceiving the physiological emotion, in accurately conceptualizing that emotion as a feeling, or both. Although the literature explicitly distinguishing these two constructs is quite limited, this is an especially important consideration when both counseling and researching individuals experiencing PTSD, a disorder characterized by an excitation of intense basic *emotions* and disruptions in emotional processing whereby the bifurcation of traumatic memories leads to the basic physiological emotions and the cognitive conceptualizations of these emotions remaining separate and distinct experiences (Litz & Gray, 2002; A. W. Wagner, Roemer, Orsillo, & Litz, 2003). This distinction is likewise significant in considerations of empathy and may help to elucidate the "cognitive" versus "emotional" polarities of the experience, which will be described in the subsequent section.

The dual nature of emotional experiencing has likewise contributed to the complicated operationalization of emotional numbing and the discrepancies between theories surrounding this construct. Taken together, however, the results of numerous studies suggest that what is experienced as emotional numbing in trauma survivors likely has both an analgesic component (i.e., numbing of physiological sensations) resulting from a taxed autonomic arousal system as well as includes both an active suppression and functional dyregulation (i.e., impairments in functioning of linguistic production areas of the brain in survivors) of emotional *expression* (Litz & Gray, 2002; Orsillo, et al., 2007; van der Kolk, et al., 1989; A. W. Wagner, et al., 2003). Examinations of emotional numbing from each of these perspectives have elucidated the role of emotional numbing in PTSD.

Emotional Numbing and PTSD

Studies have shown that emotional numbing independently contributes to both the development and severity of PTSD (Feeny, Zoellner, Fitzgibbons, & Foa, 2000; Roemer, Orsillo, Borkovec, & Litz, 1998). Emotional numbing symptoms have been shown to predict PTSD severity at three months post trauma (Feeny, et al., 2000). In addition, Harvey and Bryant (1998) found that emotional numbing symptoms at one month were the strongest predictor of the chronicity of possttrauma pathology and severity of PTSD symptoms at six months. In a latent content analysis of responses from over 3000 individuals across two community samples, Breslau, Reboussin, Anthony, and Storr (2005) found that symptoms of emotional numbing distinguished a category of trauma survivors marked by the most chronic and pervasive disturbances following trauma,

diagnosable PTSD symptoms, greater utilization of medical care, and the most pronounced disruptions in daily life.

Questions have been raised in the literature, however, as to the unique contribution of emotional numbing to PTSD over and above other related experiences such as depression, dissociation and avoidance. Although some theorists have posited that emotional numbing overlaps other disorders such as depression and dissociation, Feeny et al. (2000) determined that after controlling for both dissociation and depression, emotional numbing significantly and independently predicted the onset of PTSD. Furthermore, survivors of combat and interpersonal violence have denoted active and volitional suppression of emotions (Roemer, Litz, Orsillo, & Wagner, 2001), a willful action of which is not typically experienced in depression or dissociation. Neurobiological evidence likewise substantiates the distinctive contribution of numbing to posttrauma pathology. Researchers determined that the severity of emotional numbing independently predicts cortisol sensitization following trauma, whereby greater numbing is associated with lower levels of urinary cortisol (Hawk, Dougall, Ursano, & Baum, 2000; Mason et al., 2001). In fMRI studies, emotional numbing in female survivor of trauma with PTSD also correlates distinctly with decreased activation of the medial prefrontal cortex, areas involved in the conscious awareness of emotions, and that likewise plays a role in social cognition and empathy (Frewen et al., 2012). Such debates regarding the unique function of emotional numbing in PTSD have also led to a reexamination of the diagnostic clusters of the disorder and an elucidation of the relationship between avoidance, hyperarousal and numbing.

Emotional Numbing, Avoidance and Hyperarousal

Current iterations of the DSM combine emotional numbing with avoidance under Cluster C of the diagnostic criteria, essentially suggesting that emotional numbing acts as a form of volitional avoidance of negative and fearful emotional, cognitive and tangible reminders of the trauma. Numerous confirmatory factor analyses, however, have elucidated a four-factor symptom structure for PTSD characterized by reexperiencing, avoidance, numbing, and hyperarousal (Asmundson et al., 2000; Asmundson, et al., 2004; King, Leskin, King, & Weathers, 1998; Tull & Roemer, 2003). It has moreover been shown that emotional numbing has a stronger relationship with hyperarousal than with avoidance, with hyperarousal predicting emotional numbing over and above any other symptoms associated with PTSD (Litz, et al., 1997; Tull & Roemer, 2003; Weems, Saltzman, Reiss, & Carrion, 2003; Yoshihama & Horrocks, 2005). Theorists postulate that emotional numbing and hyperarousal represent polar ends of an autonomic arousal spectrum whereby chronic hyperarousal results in attempts at actively suppressing the emotions as well as leads the physiological system, in a sense, to emotionally shut down (Litz, et al., 2000; Porges, 2011). Conversely, however, sustained emotional numbing and allied active suppression may lead to a paradoxical effect of increased physiological arousal (Tull & Roemer, 2003).

Although inconsistent in the literature, some researchers have likewise substantiated that contrary to the negative valence of the symptomatology encapsulated by hyperarousal, reexperiencing and avoidance, emotional numbing explicitly relates to positively-valenced emotions, specifically survivors' diminished ability to feel, perceive

and experience positive affect, including expressions of affection and feelings of belongingness (Frewen, et al., 2010; Kashdan, Elhai, & Frueh, 2006). Amdur, Larsen and Liberzon (2000) as well as Orsillo et al (2004) discovered that emotional numbing in both combat survivors and female survivors of physical and sexual assault occurred only in the face of positively valenced emotional stimuli. Specifically Orsillo et al. (2004) determined that women with PTSD exhibited significantly less positive emotions and significantly more negative emotion to both positive and negative film images than did women without PTSD. Frewen et al. (2010) likewise found that women with PTSD experience not only numbing of positive emotions but also increased negative affect to both positive and negative events. Findings of this nature led Litz and Gray (2002) to postulate that emotional numbing is characterized by a hyperresponsivity to negative emotions and a decreased perception and experience of positive emotions. Other researchers however have not found such a distinction, finding instead a general numbing to all emotional experiences. Some theorists have attributed such inconsistencies to the notion that research on emotional numbing, especially in distinguishing the unique contribution of numbing to positively valenced emotions, is in its infancy and that contradictory findings may very well be due to a lack of adequate methods for measuring emotional numbing (Orsillo, et al., 2004; Orsillo, et al., 2007).

Measurement of Emotional Numbing

Until recently, emotional numbing was measured merely by taking a composite of three defined symptoms of PTSD as captured by PTSD diagnostic assessments (J. M. Cook, et al., 2004; Litz, et al., 1997) . It has been suggested however that these restricted

method of assessment reveal very little about the specific parameters and eliciting conditions of emotional responding and underestimates the extent of emotional numbing present in various PTSD populations (Honig, Grace, Lindy, Newman, & Titchener, 1999; Litz & Gray, 2002; Orsillo, et al., 2004). Citing the growing recognition and importance of this construct as a complex symptom of PTSD distinct from avoidance symptomatology, Orsillo et al. (2007) developed one of only two assessments that delineate and assess numbing as a distinct construct of PTSD. In an effort to reflect the contemporary view of emotional numbing, however, Orsillo et al. (2007) constructed the Emotional Reactivity and Numbing Scale based upon the aforementioned broad theories of emotional numbing rather than a single specific theory of numbing. As such it relies heavily on the use of positively valenced items, which reflects theories elucidating a numbing bias toward positive emotions, asserting that these items may be especially helpful in measuring the intensity of numbing. However in order to elucidate a comprehensive measure and understanding of emotional numbing, the scale also incorporates negatively valenced items. Noting the consequence of using a targeted and comprehensive assessment of emotional numbing, the present study utilizes the Emotional Reactivity and Numbing Scale rather than relying on the combined and thus confounded avoidance-numbing subscale of a PTSD diagnostic assessment.

Emotional Numbing and Social Functioning

Interestingly, emotional numbing symptoms of PTSD appear to be explicitly social in nature and thus do not represent a global numbing per say. A fMRI study by Frewen et al. (2012) found that emotional numbing was associated with decreased

activation in the medial prefrontal cortex only when participants were exposed to emotionally laden scripts that were social or interpersonal in nature. Such findings may explain the striking influence that numbing has on social functioning and may help to explain findings relating to the social consequences of emotional numbing and suppression, specifically in survivors of trauma. Researchers examining survivors of trauma noted that among the symptom clusters of PTSD, only the emotional numbing cluster significantly predicted social impairment (Malta, Levitt, Martin, Davis, & Cloitre, 2009). Furthermore, emotional numbing has been linked to interpersonal functioning more consistently than any other symptom cluster of PTSD (Monson et al., 2012). In studies detailing the effects of psychotherapy on PTSD symptom clusters, researchers found that improvements in emotional numbing following psychotherapy were distinctively associated ($p < 0.001$) with improvements in interpersonal relationships (Lunney & Schnurr, 2007; Schnurr, Hayes, Lunney, McFall, & Uddo, 2006). The association between activation in the medial prefrontal cortex and emotional numbing in Frewen et al.'s (2012) study delineates the conscious or volitional suppression of positive emotion. Other studies in nonclinical populations have shown that expressive suppression leads to frustration, impatience and even rejection in social partners (Butler et al., 2003). Such findings have prompted researchers to suggest that the emotional numbing associated with PTSD may lead to a deficit in a survivor's ability to modulate the emotional experience, thus compromising social interaction, from the very earliest stages of cortical and subcortical stimulus processing (Mazza, et al., 2012). Furthremore, Mazza and collegues (2012) determined that emotional numbing was inversely related to the

social cognitive construct of empathy in survivors with PTSD. Considerations of the social consequences of numbing and the relationship between emotional numbing and empathy are paramount considerations especially in survivors of sexual and partner violence, a population with escalated experiences of emotional numbing.

The Characterization of Empathy

"Inscrutably involved, we live in the currents of universal reciprocity" (p. 67; Buber, 1970). This quote epitomizes the notion that human beings are inextricably connected to a social world and are by nature social beings. Even an individual's neurological substructure, at the level of one's primal states of survival, has evolved in such a manner as to facilitate connection with others. From the moment children are born they begin interweaving their social web by forming attachment bonds with mother figures, bonds that largely subserve intimate connections across the lifespan. These bonds have also be found to underscore the gradual development of one's ability to regulate the social engagement system in the brain stem (Porges, 2011). The origin of these bonds, this foundational process of interconnection, is empathy (Bowlby, 1988b), the building block of the clinical therapeutic relationship (Rogers, 1956). Yet interpersonal acts of violence, which are deeply intimate violations of a woman's social connection with others, have been found to compromise a survivor's ability to experience empathetic connections (Mazza, et al., 2012; Nietlisbach, et al., 2010).

Empathy is an innate process that undergoes neuropsychological development through interpersonal interactions over a lifetime (Brothers, 1989; Buie, 1981). Considered one construct of social cognition and critical to adaptive social functioning

(Eisenberg & Fabes, 1990; Preston & de Waal, 2002; Spinella, 2005), definitions of empathy have varied considerably since the term was first derived by Lipps (1903, as cited by Coplan & Goldie, 2011) and later translated into English and introduced into psychology by Titchener (1909). The concept of empathy or *Einfühlung*, from which the present day term originated, was first used in aesthetics as a technical term to describe the way in which an observer was moved by a piece of art, yet was later applied to social psychology connoting a similar sense of being moved by or feeling the feelings of another human being (Coplan & Goldie, 2011). Today empathy continues to perplex scientists and incite intense debate (Preston & de Waal, 2002). Although it has been over forty years and during that time great advances have been made, Gordon Allport's following assertion still holds quite true: "The process of *empathy* remains a riddle….The nature of the mechanism is not yet understood" (Allport 1968, p. 30 as cited inWispé, 1986).

Definitions of Empathy

Prevailing conceptualizations of empathy, largely informed by advances in brain imaging and electroencephalogram technologies, support a multidimenational construct whereby empathy contains intimately interconnected cognitive and affective dimensions (M. H. Davis, 1980; Decety & Lamm, 2006; Lamm, Batson, & Decety, 2007; Rameson & Lieberman, 2009). Empathy therefore can best be defined as a multidimensional, dispositional construct that encompasses how the brain represents, understands, and adaptively responds to the observed experiences and internal mental states of another individual from both a cognitive (e.g., inferring mental states) and emotional (e.g.,

affective sharing) standpoint (Dziobek, et al., 2008; Rameson & Lieberman, 2009). The Perception-Action Model (PAM) of empathy (Preston & de Waal, 2002), based out of social cognitive neuroscience, integrates the two formally prevailing models of empathy, namely the Simulation Theory (Gallese & Goldman, 1998) and the Theory-Theory (Gopnik, 1993). The PAM suggests that by simply observing or imagining another person experiencing an emotional state, a representation of that state is automatically and preconsciously activated in the observer, which thereby elicits analogous autonomic and somatic responses. These autonomic and somatic responses are then integrated with the observer's cognitive understanding of those responses to form a conscious feeling. With those feelings also come a host of cognitive expectancies used in formulating an imagined mental state of being in the other person (e.g., Theory of Mind). As such, the shared autonomic and somatic emotion embodies the emotional component of empathy and the perceptions of that somatic state and ensuing expectancies engender the cognitive dimension of empathy (Preston, 2007). As such, the range of empathic responses is considerable, from empathic resonance (i.e., emotional contagion), which is considered the most basic form of empathy (Brüne & Brüne-Cohrs, 2006; Preston & de Waal, 2002; Uddin, Iacoboni, Lange, & Keenan, 2007) to more complex cognitive processes such as perspective taking and theory of mind (Baron-Cohen, 2005). Such findings furthermore mirror research relating to the distinct processes of autonomic and somatic experiences of emotions versus the cognitive interpretations of those emotions into conceptual feelings. Such overlap and the dichotomizing of empathy into emotional and cognitive

components illustrates that empathy likewise has both preconscious and conscious components (Decety & Jackson, 2006) that share related neural processing pathways.

Neuroscience of Empathy

Recent developments in neuroscience shed light on neurological correlates of this range of empathic. Empathic resonance is facilitated by a system of neurons known as mirror neurons (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003; Gallese, Eagle, & Migone, 2007; Siegel, 2001). Located in the posterior frontal lobe, near the precentral gyrus and the cingulate cortex, and regions of parietal cortex closest to the temporal lobe, mirror neurons in one individual fire in the exact same pattern when observing another complete a task as if the observer was completing the action him or herself (Gallese, 2001; Iacoboni & Mazziotta, 2007; Rizzolatti & Craighero, 2004; Uddin, et al., 2007). These neurons were first discovered in macaque monkeys in the early 1990's (Rizzolatti & Craighero, 2004) but have since been the subject of considerable investigation in humans and considered critical to language development (Rizzolatti & Craighero, 2004), social learning (Hurlemann, et al., 2010; Iacoboni & Mazziotta, 2007), social cognition (Iacoboni & Dapretto, 2006), and empathy (Schulte-Rüther, Markowitsch, Fink, & Piefke, 2007).

More recently researchers using functional fMRI technology and assessing the ramifications of cortical lesion in humans, identified mirror neurons to areas of the insula as well as implicated the anterior insula as the key brain area responsible for processing empathy (Carr, et al., 2003; Gu, et al., 2012; Mazza, et al., 2012). Given the co-localization of deficits in anterior insular functioning in individuals with PTSD, findings

by Gu et al. (2012) have marked implications on the potential influence that trauma may have on empathic functioning (Simmons, et al., 2009). Studies have furthermore substantiated a direct relationship between scores on subjective measures of empathy, namely the Interpersonal Reactivity Index and the Empathy Quotient, and functional activation of the anterior insula and mirror neuron system (Y. Cheng et al., 2009; Oberman et al., 2005). Mirror neuron functioning as well as decreased activation in the anterior insular cortex have been implicated as bases for empathic impairments found in survivors of trauma (Mazza, et al., 2012; Nietlisbach, et al., 2010).

Furthermore, one of the most pronounced and consistent findings in empathy research is the presence of sex disparities, with females demonstrating higher levels of empathy on both cognitive and affective dimensions (Eisenberg & Lennon, 1983; Rueckert, Branch, & Doan, 2011). Researchers have posited that disparities in oxytocin may moderate differential experiences of empathy (Barraza & Zak, 2009; Hurlemann, et al., 2010). In fact, Hurlemann et al. (2010) found that males and females intranasally administered oxytocin had higher overall scores on objective measures of empathy in socially-relevant situations. Furthermore the authors indicated that exogenous administrations of oxytocin raised levels of empathy in males to that of untreated females. Hurlemann et al. likewise found that individuals with bi-lateral amygdalar lesions did not respond to exogenous oxytocin and showed impairments in social-mediated empathy. Other researchers have denoted that sex differences in empathy may also be explained by emotional responsiveness (Rueckert, et al., 2011), underscoring the importance of affective processes in experiences of empathy.

Empathy and Emotional Numbing

Considerable evidence has suggested a co-localization in the neural areas that facilitate emotional processing and empathy, namely the insular cortex. As such, emotional functioning has marked implications on empathic capacity (Eisenberg, Wentzel, & Harris, 1998), whereby general emotional responsiveness has been shown to increase self-reported levels of empathy (Rueckert, et al., 2011). Decety and Jackson (2006) go so far as to include emotional regulation as a third branch of empathic processing. Decety and Jackson note, "being aware of one's own emotions and feelings enables one to reflect on them… [and] experience empathy" (p. 57). Substantiating this claim, Moriguchi et al. (2007) determined that individuals with alexithymia, characterized by an inability to express one's own emotional states, demonstrated decreased levels of self-reported emotional empathy, leading the authors to assert, rather intuitively, that an awareness of one's own emotional state is a prerequisite for recognizing such states in others. Researchers have correspondingly and consistently shown that empathic capacity is compromised in individuals experiencing emotional numbing (Baumeister, DeWall, & Vohs, 2009; Mazza, et al., 2012; Paivio & Laurent, 2001). Consequently individuals with PTSD, who lack an awareness or control of affective states, may have a compromised capacity for empathy, which in turn decreases their potential for healthy social connections (Y. Cheng et al., 2008; Nietlisbach & Maercker, 2009).

Empathy and the Therapeutic Relationship

Empathy or more clearly the development of an empathic connection has been established as one of the necessary and sufficient conditions for change within a therapeutic context (Rogers, 1956). The importance of this empathic connection is substantiated by theories of interpersonal neurobiology, which underscores the notion that interconnections between and among brain regions are established ultimately through relationships. Siegel (2003) suggests that evolutionarily human brains are designed to be altered by relational experiences, and that the brain is "literally constructed by interactions with others" (p. 18). Thus, this empathic connection at the foundation of the therapeutic relationship serves as a tool for helping clients to reestablish brain connections (i.e., a process known as neuroplasticity) in a manner that best supports adaptive functioning.

Furthermore, authors have suggested that the therapeutic relationship functions as a secondary attachment relationship that can serve to activate, as with primary attachment bonds (i.e., infant-caregiver attachment), similar neural structures that promote a sense of security, acceptance, comfort, and self-regulation in clients (Bowlby, 1988a; Fishbane, 2007; Fuchs, 2004; E. P. Solomon & Siegel, 2003). Research furthermore suggests that the empathy established in a strong therapeutic relationship can actually help to repair early detrimental attachment patterns (Pearlman & Courtois, 2005). As a result, establishing a solid therapeutic relationship, although important with all clients, is vital when working with survivors of interpersonal trauma, particularly sexual and partner violence, experiences which violate paradigms for human connection (Herman, 1992b).

Empathy and Posttraumatic Stress Disorder

Only two studies to date have examined the influence of trauma on empathic functioning in individuals with PTSD (Mazza, et al., 2012; Nietlisbach, et al., 2010). Using an Empathic Resonance Video Sequence, a task of emotional contagion upon viewing facial expressions, Nietlisbach et al. (2010) found significant impairments in objective measures of empathy for individuals with PTSD and subclinical levels of PTSD. This study, however, failed to show differences between traumatized and nontraumatized populations using a subjective index of empathy, namely the Interpersonal Reactivity Index (IRI; M. H. Davis, 1983). Although a very limited sample size (eight participants per clinical and nonclinical groups) complicated findings, the authors concluded that PTSD appears to explicitly affect automatic and preconscious levels of empathy and suggested future researchers consider neurological markers. This hypothesis is consistent with neurobiological theories of trauma that suggest survivors respond in habitual action patterns driven by unregulated emotional processing and breakdowns in the cortico-limbic cortical systems (Ogden, et al., 2006; van der Kolk, 1994).

Such findings likewise coincide with conclusions by Mazza et al. (2012) who suggested that the physiological correlates of trauma may impact social functioning at a very primitive level of neurological processing. Mazza et al. expanded the findings of Nietlisbach et al. (2010), however, by demonstrating deficits in both subjective and objective measures of empathy. Unlike Nietlisbach and colleages (2010), who subjectively assessed empathy via the IRI, Mazza et al. utilized the Empathy Quotient

(EQ), a multidimensional subjective measure of empathy developed by Baron-Cohen and Wheelwright (2004). The discrepancy in findings between the two subjective measures of empathy used in the studies may best be explained by social desirability. The EQ includes 20 distracter items that lessen a relentless focus on empathy thereby potentially decreasing susceptibility to socially desirable responding. Mazza et al., using a student's unpaired t-test to determine group differences in total EQ score found significantly lower subjective ratings of empathy in individuals with PTSD ($T = 3.32$; $p < 0.01$). Mazza et al (2012) also used brain imaging data to substantiate differences in empathic responding between groups. The authors found that individuals with PTSD demonstrated disparate activation in the anterior insular cortex, and areas known to be involved in emotional numbing and empathy, when compared to control participants without PTSD.

Mazza et al. (2012) also extended the findings of Nietlisbach et al. (2010) by establishing a relationship between empathy and emotional numbing in survivors of trauma. Pearson's correlations demonstrated a strong inverse relationship between scores on the EQ and Avoidant-Numbing subscale scores of the Davidson Trauma Scale (Davidson et al., 1997). As this indicates, however, Mazza et al. used combined avoidant-numbing subscale scores from a general measure of PTSD severity rather than employing a more thorough measure of emotional numbing as has been purported integral to the accurate assessment of this construct (Orsillo, et al., 2007). As such, it will be important to substantiate this inverse relationship between emotional numbing and empathy in trauma survivors using a more comprehensive measure of emotional numbing.

Furthermore, however, Mazza and al.'s (2012) findings, like Nietlishbach, et al.'s (2010) were again limited by small samples (ten participants per clinical and nonclinical groups).

In discussing the practical results of such findings, both Nietlisbach et al. (2010) and Mazza et al. (2012) alluded to the debilitating effects of diminished empathic capacity on compromised social functioning in trauma survivors. Mazza et al. went one step further by implicating emotional numbing as the root of empathic disparities in PTSD and further still the consequences of this connection to experiences of social support. Yet to date, no study has examined emotional numbing and empathy within female survivors of interpersonal trauma, a category of trauma known to exacerbate experiences of numbing. Furthermore no study to date had explored PTSD symptomatology, emotional numbing, empathy, and perceptions of social support within a single paradigm. The present study will fill this gap by investigating the mediating effects of emotional numbing and empathy on perceptions of social support in female survivors of interpersonal trauma with varying degrees of PTSD symptom severity.

Trauma, Posttraumatic Stress Disorder, and Psychotherapy

Despite the popularity of Cognitive Behavioral interventions in trauma research and research funding, there is currently no accepted 'gold standard' among PTSD interventions, nor has a particular treatment approach been collectively endorsed across clinicians. In addition, gender differences in response to treatment have not been effectively studied (Foa, Keane, Friedman, & Cohen, 2009). Furthermore, researchers have effectively demonstrated that of the interventions currently being studied, none are successful in "addressing the full range of clinical problems observed in trauma

survivors" (p. 941; McFarlane & Yehuda, 2000). Leiner et al. (2012) suggest that irrespective of the availability of effective therapeutic interventions survivors of sexual assault in particular, owing to the preponderance of emotional numbing and avoidance coping in this population, do not respond to such treatments. In addition, estimates suggest that between one in five and one in two clients struggling with trauma drops out of psychotherapy (Bryant et al., 2007; Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008) and that those higher in avoidance coping and numbing are more prone to discontinue counseling (Bryant, et al., 2007). Furthermore, impairments in emotional regulation, which is a hallmark of PTSD has been found to directly interfere with participation in psychotherapy (Freeman, et al., 2009).

In order to elucidate effective interventions for survivors that both increase therapeutic retention rates as well as promote significant decreases in symptom endorsement, perhaps it is not the intervention itself that primarily needs to be reconsidered but the clinicians' understanding of the experiences of the survivor. According to Shapiro (2010), "psychotherapists working with individuals who have been traumatized need to use the trusting therapeutic relationship to cultivate healing by attuning to the internal world of the client" (p. xiii). Furthermore, Siegel (2003) expounds on the importance of contingent communication in experiences of empathy. According to Siegel, contingency when related to communication requires that both client and therapist be able to perceive, make sense of, and respond to the interpersonal and linguistic signals of the other in a time-sensitive manner. Such communicative reciprocity builds a sense of communion and resonance between the two individuals, developing, both verbally and

nonverbally, a sense of being felt, understood and in connection with another, developing empathy. However, the foremost requirement in this process is accurate perception. If the survivor, due to physiological maladaptions, has difficulty accurately perceiving available social support and thus the empathic support offered by the clinician, perhaps the trust and rapport inherent in the therapeutic relationship is not strong enough to sustain effective work through the interventions, leading to clients abandoning therapy.

Effective treatment is theorized to result from complete accessing and integration of the traumatic memory, including a full experience of the associated emotions (Foa & Rothbaum, 1998). However, without an empathic connection and the ensuing trust, safety, and emotional regulation that flows from this connection, such integration proves difficulty and even potentially retraumatizing to the survivor (Jaycox & Foa, 1996; Jaycox, Foa, & Morral, 1998; A. W. Wagner, et al., 2003). Emotional engagement is critical in the successful emotional processing of traumatic experiences and thus may interfere with the success of therapeutic exposure (Jaycox, et al., 1998).

The present study will serve to create a more comprehensive understanding of the psychological and social experiences of female survivors of interpersonal trauma, which will in turn inform the development of more efficacious clinical interventions for such women. If women survivors cannot accurately perceive and respond to available sources of social support, due to difficulties with emotional numbing and empathy, then present interventions that target exposure and the cultivation of support may be premature. Perhaps as an alternative, optimal interventions with this population should, concurrent with the deliberate and well-paced development of the therapeutic relationship, first

address the alleviation of symptoms related to emotional numbing and the fostering of both the awareness of autonomic emotional states as well as an accurate connection of such somatic experiences with cognitive and linguistic construct.

CHAPTER III

METHODOLOGY

The present study aims to explore the relationship between perceived social support, emotional numbing, empathy, and PTSD symptom severity in female survivors of interpersonal trauma. Behavioral research routinely assesses social support via self-report mechanisms, disregarding potential neurological and physiological correlates that may underlie perceptions of social support. Other authors have pointed to deficits in social cognitive factors such as empathy as one possible explanation for altered perceptions of support, but again have not acknowledged potential neurological underpinnings that may explain such connections to perceptions of support. The present study, however, will address this gap by investigating the relationship between empathy, perceived social support, and correlates of physiological dysregulation in PTSD, namely emotional numbing, within a single paradigm. The previous two chapters have explored each of these variables and the status of the field in depth. The present chapter outlines the research questions, hypotheses and causal-comparative research design used in exploring such associations.

Research Questions and Hypotheses

The present study will examine the relationship between PTSD symptom severity, empathy, emotional numbing and perceived social support in female survivors of

interpersonal trauma. Based on previous findings and neurobiological theories of PTSD, the proposed model suggests that the development of PTSD can give rise to emotional numbing, which may impair empathic abilities in survivors and subsequently impede perceptions of social support. As such, this study specifically tests the mediating effects of emotional numbing and empathic capacity in the relationship between PTSD symptom severity and perceptions of the availability and valence of social support in female survivors of interpersonal trauma. To test this model, four research questions were developed and six hypotheses proposed.

Research Question 1: What is the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?

Hypothesis 1: There will be a significant ($p \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the *PTSD CheckList – Civilian Version* (PCL-C) overall scale and subscales and empathic capacity as measured by the *Empathy Quotient* (EQ).

Research Question 2: What is the relationship between PTSD symptom severity and the perceived availability and valence of social support in female survivors of interpersonal trauma?

Hypothesis 2a: There will be a significant ($p \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the PCL-C overall scale and subscales and perceived availability of social support as measured by the *Multidimensional Scale of Perceived Social Support* (MSPSS).

Hypothesis 2b: There will be a significant ($p \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the PCL-C overall scale and subscales and perceived valence of social support as measured by the S*ocial Acknowledgment Questionnaire* (SAQ).

Research Question 3: Does emotional numbing mediate the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?

Hypothesis 3a: Positive emotional numbing as measured by positive numbing subscale of the *Emotional Reactivity and Numbing Scale* (ERNS) will significantly ($p \leq 0.05$) mediate the relationship between PTSD symptom severity as measured by the PCL-C overall scale and empathic capacity as measured by the EQ in female survivors of interpersonal trauma.

Hypothesis 3b: General emotional numbing as measured by general numbing subscale of the *Emotional Reactivity and Numbing Scale* (ERNS) will significantly ($p \leq 0.05$) mediate the relationship between PTSD symptom severity as measured by the PCL-C overall scale and empathic capacity as measured by the EQ in female survivors of interpersonal trauma.

Research Question 4: Does empathic capacity mediate the relationship between emotional numbing and perceived availability of social support and/or social support valence in female survivors of interpersonal trauma with PTSD?

Hypothesis 4: Empathic capacity as measured by the EQ will significantly ($p \leq 0.05$) mediate the relationship between affective numbing as measured by the ERNS and perceived availability and valence of social support as measured by the MSPSS and SAQ respectively.

Participants and Sampling

Adult female survivors of interpersonal violence 18 years and older served as participants in the present study. Participants were recruited through volunteer sampling in conjunction with professionals and agencies represented by the North Carolina Coalition Against Sexual Assault (NCCASA; see Appendix L) and the North Carolina Coalition Against Domestic Violence (NCCADV; see Appendix L). Previous research investigating empathic capacity in PTSD has found small effect sizes, ranging from 0.25 to 0.35 (Nietlisbach, et al., 2010), and studies assessing the impact of social support in individuals with PTSD have found effect sizes in the small to moderate range, 0.29 to 0.4 (Brewin, et al., 2000; Ozer, et al., 2003). As such, it was proposed that 124 individuals would be needed as participants in this study to reach reliable statistical conclusions. Estimates were derived using G* Power statistical software (Faul, 2010) for a fixed model multiple linear regression R^2 deviation from zero, with alpha equal to 0.05, an effect size of 0.08, power of 0.80, and two predictor variables.

Instrumentation

Participants will complete a total of nine assessments (see Appendix G) for the present study as follows: the Demographic Questionnaire, *Center for Epidemiologic Studies Depression Scale- 10* (CESD-10; M. Irwin, Artin, & Oxman, 1999), *Stressful Life*

Events Screening Questionnaire-Modified (SLEQ-R; Goodman, et al., 1998; Green, Chung, Daroowalla, Kaltman, & DeBenedictis, 2006), *Women's Experience with Battering* (WEB) scale (Smith, et al., 1995), *PTSD Checklist – Civilian Version* (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993), *Multidimensional Scale of Perceived Social Support* (MS-PSS; Zimet, Dahlem, Zimet, & Farley, 1988), *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004), *Social Acknowledgment Questionnaire* (SAQ; Andreas Maercker & Müller, 2004), and the *Emotional Reactivity and Numbing Scale* (ERNS; Orsillo, et al., 2007). Following completion of the nine assessments, participants also will be asked to respond to three questions related to post-violence service acquisition and provision as requested by NCCASA. With the exception of the demographic questionnaire and the NCCASA service provision items, all assessments selected for the present study are standardized measures with acceptable levels reliability and validity. The assessment names will be removed from instruments to decrease social desirability and response bias, and all assessment items will be entered into an electronic survey software program (*Qualtrics*©). All assessments will be offered in both a pencil-and-paper and electronic format.

Demographic Questionnaire

The demographic questionnaire was designed purposely for the present study to collect information related to factors that have been shown to correlate with one of the study constructs of interest, namely PTSD symptom severity, emotional numbing, social support, or empathy. Specifically the demographics form assesses age, ethnicity, relationship status, highest level of education, household income, psychotherapeutic

history (i.e., duration, time since, and level of perceived benefit), and current use of psychotropic medications. The demographics form likewise asks about primary language and comfort level with the English language if English is not a survivor's primary language. This question addresses ethical considerations as to the respondents' ability to adequately read and comprehend both the consent document and the assessment items. If a participant rates her proficiency with the English language as a five or below on the scale from one to ten, the survey information will be omitted from analyses. Finally, information pertaining to the sexual-affectional orientation of the survivor will likewise be collected for purposes of inclusivity and to recognize the equally deleterious occurrence of sexual and partner violence for women who identify as gay or lesbian and bisexual.

Co-occurring Depression

The *Center for Epidemiologic Studies Depression Scale* (CESD-10; Radloff, 1977) screens for clinical presence of major depressive disorder. A condensed 10-item version (M. Irwin, et al., 1999) will be used to exclude participants with clinical depression. This self-report measure, rated on a 4-point Likert Scale ranging from zero (rarely) to three (most or all of the time), with two items reverse scored. A score of 10 delineates clinically significant depression. The CESD-10 has been found to have moderate test-retest reliability ($r = 0.71$), and high internal consistency with a Cronbach's alpha of 0.92 (Irwin, et al., 1999).

Trauma Exposure

The *Stressful Life Events Screening Questionnaire – Revised* (SLEQ-R; Goodman, et al., 1998; Green, et al., 2006) is a 13-item self-report screening measure assessing lifetime exposure to 13 different types traumatic events that qualify as Criterion A stressor events for PTSD in the DSM-IV. Originally developed and tested for use in non-treatment seeking populations, this assessment not only asks if the event occurred ("yes" or "no") but also contains sub-questions for each of the events related to age at the time of the trauma, the frequency and duration of the event, relationship of the perpetrator (for interpersonal violence), if injury or death occurred, and if the respondent believed their life to be in danger at the time of the event. Psychometric testing of the instrument revealed good criterion validity, with 85% of the reported events classified as meeting Criterion A1 of PTSD. Furthermore, convergent validity was assessed by comparing the self-report measure to a clinical interview two weeks later and determined a median kappa of 0.64 (Goodman, et al., 1998). The SLEQ-R was revised to best fit the needs of the present study. The questions regarding sexual violence and physical violence in the original version of the SLEQ-R were both dichotomized into a total of four questions, two pertaining to childhood sexual and physical violence and two relating to experiences of sexual and physical violence experienced as an adult. Furthermore, given feedback from pilot research the wording of several questions and response choices were modified (see Table 5 for specific changes made subsequent to the pilot study). The SLEQ used in the present study was modified with permission from the original author (L. Goodman,

personal communication, February 10, 2013) to reflect the particular needs of the present study and given feedback from pilot participants.

Women's Experiences with Battering

The Women's Experiences with Battering Scale (WEB; Smith, et al., 1995) was used in the present study to better index the violent and oppressive experiences of women in abusive relationships. Rather than rely on an assessment of discrete instances of behaviors by the abusive partner, the WEB emphasizes the lived experience of the survivor by measuring the woman's perceived vulnerability to danger and the power and control used against her in the relationship. As such, the WEB is a more sensitive and comprehensive screening tool for identifying partner in particular. The WEB is inclusive of 10 statements assessing the extent to which the survivor agrees or disagrees with each using a likert scale from strongly disagree (1) to strongly agree (6). Scores across each response are summed and for a total WEB score, with higher scores indicating more intesnse experiences of battering. A score of 20 or higher denotes experiences of IPV. Previous studies have found the WEB to show high internal consistency reliability, with Cronbach's alphas ranging from 0.91 to 0.99 (Coker, Smith, Bethea, King, & McKeown, 2000; Smith, et al., 1995; Smith, Thornton, DeVellis, Earp, & Coker, 2002). Furthermore, given findings from the pilot study, which suggested that a number of the participant had experienced past partner violence but that such had not occurred in a present or most recent relationship, three additional items were developed by the measure's author for use in the present study. These three items assessed for experiences

of battering in a relationship other than the current or most recent relationship. These items were dichotomized and a response or either yes (1) or no (2) was given for each item.

Posttraumatic Stress Disorder Symptom Severity

Designed for both research and clinical purposes, the *PTSD Checklist- Civilian Version* (PCL-C; Weathers, et al., 1993) is a short (mean administration time equals five minutes) 17-item self-report measure that directly corresponds to PTSD diagnostic criteria B, C, and D, as delineated in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000). Items are assessed on a five-point Likert-type scale from "Not at all" (1) to "Extremely" (5). Severity scores are determined from summing all items to derive a total scale or from summing the criterion subscale scores, re-experiencing, avoidance, and hyperarousal respectively. A diagnosis of PTSD can be made if respondents endorse a symptom rating of at least three on at least one re-experiencing symptom, three avoidance symptoms, and two arousal symptoms. Using an overall cut-off score as clinical diagnostic criterion has been highly debated in the literature, and as such the symptom cluster method of assessment described previously is most often used for diagnostic purposes (Ruggiero, Ben, Scotti, & Rabalais, 2003). The PCL-C has been found to have very strong Cronbach's alpha coefficients of 0.94 for PCL-C total and 0.85 (re-experiencing), 0.85 (avoidance), and 0.83 (hyperarousal) for the three criterion subscales individually (Ruggiero, et al., 2003). Likewise, the PCL-C was found to have high test-retest reliability across a one week interval with correlation coefficients of 0.88 (Ruggiero, et

al., 2003) and 0.87 (Adkins, Weathers, McDevitt-Murphy, & Daniels, 2008) in two separate studies. Furthermore, Adkins et al. (2008) determined the PCL-C to have high convergent and discriminant validities when compared to six other measures for PTSD symptomatology. Total symptom severity scores will be the unit of analysis in the current study. Given preceding explications on the warrants of including individuals with subclinical PTSD in research investigating the implications of trauma on survivors, a formal diagnosis of PTSD will not be used as a requirement in the present study. Thus, survivors with sub-clinical levels of PTSD will be included in analyses.

Empathic Capacity

The *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004), is a multidimensional measure of empathy that was especially designed for clinical application (Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). The EQ includes 60 self-report items (40 empathy items and 20 filler items) scored using a four-point Likert-type scale from "strongly disagree" to "strongly agree." Two points are given for "strongly agree" and one point for "agree", with 19 of the items being reverse coded, yielding a total possible score of 80. Although the EQ measures both the cognitive and affective dimensions of empathy, a recent study using Rasch modeling demonstrated that the EQ measures a global construct of empathy that can effectively be designated by a single summed total EQ score (Allison, Baron-Cohen, Wheelwright, Stone, & Muncer, 2011). The Cronbach's alpha coefficient for the overall score was found to 0.92 in the original study (Baron-Cohen & Wheelwright, 2004) and 0.99 in a future study (Allison, et al., 2011). In assessing the content validity, Baron-Cohen and Wheelwright (2004) sent

the proposed questions to six external judges. All 60 items were correctly categorized by at least five out of six judges leading the authors to conclude that the probability of attaining such consensus by chance was $p < 0.01$. Further validation of the EQ was obtained by comparing the global EQ to the Interpersonal Reactivity Index (IRI; M. H. Davis, 1980; M. H. Davis, 1983), the most widely used assessment of empathy, and two additional measures of empathy-related constructs. The concurrent validity between the global EQ and IRI affective and cognitive subscales was moderate, with significant positive correlations between the EQ and both the affective IRI-Empathic Concern ($r = 0.42$) and cognitive IRI-Prospective Taking ($r = 0.49$) subscales. Comparisons of the EQ with the Friendship Quotient and the Autism Quotient, empathy-related constructs, found moderate significant correlations in the expected directions ($r = 0.59$ and $r = -0.56$, respectively). Furthermore, Baron-Cohen and Wheelwright (2004) and Lawrence et al. (2004) found acceptable levels of construct and content validity when using outside raters and comparing the EQ to other measures of empathy.

Likewise, the empathy quotient has been used with clinical populations, most notably Autism Spectrum Disorder and Asperger Syndrome and has been found to effectively discriminate individuals with high functioning Autism and Asperger Syndrome from the general population at a rate of 81.1 percent (Baron-Cohen & Wheelwright, 2004). The EQ has also been used to explore empathic capacity in individuals experiencing symptoms of Schizophrenia (Bora, Gökçen, & Veznedaroglu, 2008), Anorexia Nervosa (Adenzato, Todisco, & Ardito, 2012), Alexithymia (Grynberg, Luminet, Corneille, Grèzes, & Berthoz, 2010) and Posttraumatic Stress Disorder (Mazza,

et al., 2012), as well as in neuroanatomical studies of mirror neuron functioning (Y. Cheng, et al., 2009; Woodruff, Daut, Brower, & Bragg, 2011).

Emotional Numbing

The *Emotional Reactivity and Numbing Scale* (ERNS; Orsillo, et al., 2007) is a 62-item self-rating measure assessing emotional numbing on the following five subscales: positive emotions (26 items), sadness (11 items), anger (11 items), fear (6 items), and general emotions (8 items). All items are scored on a five-point Likert-type scale ranging from 1 (not at all typical of me) to 5 (entirely typical of me), with 20 items reverse scored. The ERNS provides continuous scores for each subscale, with lower subscale scores denoting affective numbing. However, the subscales do not contain a set point to designate numbing Subscale alphas range from 0.81 (general numbing subscale) to 0.91 (numbing of positive emotions subscale). Scores also were found to be consistent over time with test retest reliability following a one-week interval yielding Pearson correlations as follows: positive subscale, $r = 0.82$; general, $r = 0.72$; sadness, $r = 0.79$; anger, $r = 0.87$; and fear, $r = 0.76$.

Furthermore, when compared with the one-item emotional numbing index of the Distressing Events Questionnaire (Kubany, Leisen, Kaplan, & Kelly, 2000), the ERNS demonstrated acceptable levels of convergent validity (Orsillo, et al., 2007). Pearson correlations, using a modified family-wise Bonferroni correction, revealed significant negative correlations between increased numbing reported on the single item of the DEQ and increased emotional numbing (indicated by lower subscales scores) on the generalized numbing ($r = -0.56$) and numbing to positive emotions ($r = -0.53$) subscales

of the ERNS. Scores from the five subscales also have been used to discriminate individuals with PTSD, correctly classifying 67.1 percent of individuals who meet criteria for PTSD, with a sensitivity of 64.1 percent and a specificity of 70 percent (Orsillo, et al., 2007). Traumatized individuals were found to show significantly greater numbing (lower subscale scores) on both the general [t (77) = 2.26, p = 0.01] and positive [t (77) = 2.03, p = 0.02] emotion subscales and significantly greater hyperreactivity on the sadness [t (77) = -2.40, p = 0.01] and anger [t (77) = -2.24, p = 0.01 0.05] subscales (Orsillo, et al., 2007). There were no significant differences however on the fear subscale between individuals with and without PTSD [t (77) = -0.88, p > 0.05] (Orsillo, et al., 2007). In addition, females were found to be significantly more reactive to fear [t (77) = -2.95, p = 0.002] and sadness [t (77) = -2.34, p = 0.01] when compared to males but did not demonstrate significant differences on any other subscale scores. Only the general and positive subscale scores will be used for the purposes of this study (Orsillo, et al., 2007).

Perceived Availability of Social Support

Participants' perceived level of social support will be assessed using the *Multidimensional Scale of Perceived Social Support* (Zimet, et al., 1988). This scale measures perceived social support along three domains (i.e., support from friends, from family and from one's significant other), whereby respondents rate 12 self-report items on a seven-point Likert-type scale ranging from 1 (Very strongly disagree) to 7 (Very strongly agree), with higher scores denoting greater perceived levels of support. The scores from each of the three subscales can be reported individually or summed to obtain

a global index of perceived social support. Although normed on a university student population, the MSPSS has since been validated across a wide range of samples, including pregnant women (Zimet, Powell, Farley, & Werkman, 1990), adolescents (Canty-Mitchell & Zimet, 2000; S.-T. Cheng & Chan, 2004), psychiatric populations (Cecil, Stanley, Carrion, & Swann, 1995; Clara, Cox, Enns, Murray, & Torgrudc, 2003), medical residents (Zimet, et al., 1990), and across numerous cultures (Chou, 2000; Edwards, 2004; Eker, Arkar, & Yaldiz, 2000; Ramaswamy, Aroian, & Templin, 2009). Cronbach's alphas for each of the subcales have been assessed on both clinical and nonclinical samples (Clara, et al., 2003), with favorable results. Internal consistency reliability measures for the individual scales were found to be Family alpha = .92 (clinical) and .92 (nonclinical), Friends alpha = .94 (clinical) and .93 (nonclinical), and Significant Others alpha = .94 (clinical) and .93 (nonclinical). Test-retest reliability across three months ranged from .72 to .85, indicating good stability over time (Zimet, et al., 1988). The alpha coefficient for the total scale was found to be 0.88 to 0.92 (Zimet, et al., 1988; Zimet, et al., 1990). Likewise, construct validity has been shown to be adequate when compared to other measures of support and across measures of anxiety and depression (Kazarian & McCabe, 1991; Zimet, et al., 1988). Furthermore, the MSPSS has been shown to be relatively free of social desirability bias despite the positive wording of all of the items (Dahlem, Zimet, & Walker, 1991). Although this scale does not include a subscale to specifically measure perceptions of available support by clinicians or professionals, the global score of perceived social support will be used in the present analyses rather than distinguishing between sources of support. In addition, the measure

for perceived valence of support, discussed in the subsequent section, captures information regarding perceptions of professional support.

Perceived Social Support Valence

The valence of participants' perceived social support will be indexed by the Social Acknowledgment Questionnaire (SAQ; Andreas Maercker & Müller, 2004). The SAQ measures an individual's perception of general disapproval by others as well as her perceptions of being recognized as a survivor or victim of trauma using 16 self-report items rated on a six-point Likert-type scale, from 0 (Totally disagree) to 5 (Totally agree). This scale assesses perceived reactions not only of the survivor's closest social network (e.g., family and friends) but also of professionals with whom the survivor interacts. Eight of the sixteen items are reverse coded, yielding an overall scale that is positively rated whereby higher summed scores correspond to greater approval and recognition as a survivor. Principal components analyses have confirmed three unique subscales in the measure, namely Recognition as a victim, General disapproval, and Family disapproval. Cronbach's alpha for the total scale ranged from 0.79 to 0.86, with subscale alphas ranging from 0.79 to 0.87, 0.78 to 0.82, and 0.78 to 0.85 respectively for two samples of trauma exposed individuals. Test-retest reliability measures show that the ratings are stable over time, with correlations between initial and two-month delayed retests equaling 0.80 for the total scale (Andreas Maercker & Müller, 2004). Furthermore, to test the convergent validity of the SAQ, the authors compared the measure to The Social Support Questionnaire (Fydrich, Geyer, Hessel, Sommer, & Braehler, 1999) an independent measure of perceived social support and found moderate to high correlations ranging

from 0.41 to 0.63. A hierarchical regression analysis was used to demonstrate the unique contribution of social acknowledgement over and above perceived social support alone in explaining PTSD symptom severity [$\Delta R^2 = 0.16$, $p < 0.001$ and ß = -0.42, $p < 0.001$]. In addition, although the overall SAQ as well as the subscales correlated significantly with the overall PTSD symptom severity, the correlations between the total PTSD symptom severity as measured by the Impact of Events Scale – Revised (D. S. Weiss & Marmar, 1997) and the overall SAQ score ($r = -0.55$, $p < 0.01$) and SAQ general disapproval scale ($r = 0.55$, $p < 0.01$) were the strongest. The total summed score will be used as the unit of analysis in this study.

Service Acquisition

Upon request of the North Carolina Coalition Against Sexual Assault, four additional questions have been included that address sexual or partner violence services that survivors have accessed. As this study will be a state-wide effort, NCCASA wanted to determine not only which services survivors were accessing but also what additional services the survivors felt would have been beneficial that were not offered. The inclusion of the initial question, regarding whether the survivor has accessed services for sexual assault or partner violence (yes or no), was developed primarily for the online version of the survey to serve as a contingency question whereby the latter three questions will only be presented if the response to the first question is "yes" to either service.

Procedures

Upon obtaining approval from the university-affiliated Institutional Review Board, the North Carolina Coalition Against Sexual Assault (NCCASA) will make initial contact and disseminate information about the study, using information in the *Site Recruitment Letter* (see Appendix H), to all professionals and agencies represented by the coalition. The Recruitment Letter suggests various ways in which the professionals and agencies could assist in participant recruitment, such as the following: allowing the researcher to attend therapeutic or support groups for survivors to provide survivors with the opportunity to participate; disseminating information and either the study link or paper-based assessment packets to clients; posting the online link for the study on social media outlets, webpages, and newsletters; disseminating study information and the electronic link to the study on listservs; and posting flyers (see Appendix I) with study and contact information. The letter also invites agencies and professionals to suggest other ways in which they may be able to assist in the recruitment of participants given the unique circumstances of the practice site.

The researcher will then follow up with all agencies and professionals and send any agency or professional that expresses interest in participating copies of the *Study Information Sheet* (see Appendix J) and both hard copies of the survey (as requested) and the electronic link to the survey for completion by survivors. For centers that allow the researcher access to therapeutic or support groups for survivors, the researcher will attend the group and provide information and assessment packets to all interested participants for immediate or future completion. On such occasions that the researcher mails

assessment packets to interested agencies or professionals, stamped, self-addressed return mailing envelopes and gift cards will likewise be provided. Informational flyers, with details of the study, inclusion criteria, monetary compensation, and the researcher's contact information, will be provided to all interested professionals and agencies for posting. Furthermore, all participants will be given the option of completing the study either electronically or via pencil and paper format.

Interested participants will then be asked to read and review the UNCG IRB approved long consent form (see Appendix K). In the electronic assessment format, participants will first be presented with the study information and the informed consent document on the computer screen. The participant will electronically consent by responding "yes" as a forced-choice response (Yes or No). If the participant tries to skip this question or responds "No," the computer system will not allow the participant to progress in the assessment. Given that many survivors seeking services in domestic or sexual violence agencies or with mental health professionals may concurrently be hiding from ex-partner or attackers or have open custody, divorce, restraining order or criminal court cases, anonymity is of utmost importance to the safety and future wellbeing of survivors. As such, a waiver of *signed* Informed Consent has been requested for the full study, as it would be the only identifying information linked to any study responses or the study in general.

If survivors consent to participate, they will be asked to complete nine behavioral assessments in the following order: the Demographics Form, *Center for Epidemiologic Studies Depression Scale- 10* (CESD-10), *Stressful Life Events Screening Questionnaire-*

Modified (SLEQ-M), *Women's Experience with Battering* scale (WEB), *PTSD Checklist – Civilian Version* (PCL-C; Weathers, et al., 1993), *Multidimensional Scale of Perceived Social Support* (MS-PSS; Zimet, et al., 1988), *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004), *Social Acknowledgment Questionnaire* (SAQ; Andreas Maercker & Müller, 2004), the *Emotional Reactivity and Numbing Scale* (ERNS; Orsillo, et al., 2007) and two service provision questions.

As the SLEQ inquires about sensitive information, presenting the demographics form and CESD first will allow participants to become more comfortable with the assessment format as well as responding to personal and potentially sensitive questions. Furthermore, before responding to the SLEQ, participants will again be reminded of the confidentiality and anonymity of their responses. Contact information for local emergency mental health clinics will also be provided on both the paper and online formats on the occasion that the questionnaire elicits marked distress in participants. Respondents will be allowed to skip questions and can go back to previous pages to complete any unanswered questions. Participants also will be given the liberty of completing the survey packet in a location of their choosing in which they feel most private and confidential. Reading of the informed consent and completion of study assessments is estimated to take approximately 30 minutes, yet some individuals may take longer depending upon personal variables. After completing the assessment instruments, all participants will receive a $10 gift card.

All participant responses will remain anonymous and confidential. Participant responses will be de-identified and no Internet Protocol (IP) addresses will be collected

for individuals completing the electronic version of the survey. In addition, each response set will be designated a randomly generated participant number by Qualtrics (electronic version) or when entered into Excel (paper version) by the researcher. Furthermore, all electronic files will be password-protected.

Data Analysis

Preliminary Analyses

All data analyses will be completed using Version 20 of SPSS statistical analysis software. Initially data will be assessed for incomplete responses sets on all standardized assessments used in analyses and Markov chain Monte Carlo multiple imputation with five imputations and a maximum iteration value of 10 was performed to account for all missing data. Descriptive statistics will be calculated for all demographic data to determine sample characteristics. Alpha reliability coefficients will be calculated on each self-assessment measure for the present sample. Furthermore, a Pearson correlation matrix will be established for all variables to assess for multicollinearity in multivariate analyses. Significance for all statistical analyses will be based on a p-value of 0.05. The effect of time since trauma and concurrent depression will be examined in analyses. For complete information about hypotheses, variables, and analyses (see Table 1). Furthermore, prior to analyzing data, an a priori list of potential confounding variables, ranked by importance, was developed that delinated the order in which the variables would be controlled for in the primary analyses given a sufficient sample size and power. The list was as follows: depression severity, the time that has elapsed since the trauma

occurred, present involvement in psychotherapy, and present psychopharmacotherapy. The resultant only allowed for an examination of the influence of depression severity in the present analyses.

Primary Analyses

Research Question One. A two-tailed Pearson Bivariate Normal correlation between continuous severity ratings on the PCL-C total and subscale scores and continuous empathic capacity scores on the EQ will be conducted.

Research Question Two. A two-tailed Pearson Bivariate Normal correlation between continuous severity ratings on the PCL-C total and subscale scores, continuous ratings of perceived availability of social support on the MSPSS and continuous scores of valence of support on the SAQ will be conducted.

Research Question Three. For this research hypothesis, a test of mediation will be conducted whereby continuous measures of empathic capacity from the EQ are predicted by both PTSD symptom severity using the PCL-C total severity score and Emotional Numbing as indexed by continuous scores on the ERNS general numbing and positive emotion subscales. A series of multiple linear regressions, R^2 deviation from zero, will be used for this analysis, following Baron and Kenny's (1986) causal steps model of mediation, and using a Sobel z-test to determine if the addition of the mediator variable (ERNS) causes a significant decrease in the effect of the independent variable (PCL-C) on the dependent variable (EQ). This process will be conducted separately for the general and positive ERNS subscales.

Research Question Four. A second test of mediation will be conducted for this hypothesis, yet using a series of univeriate and multivariate linear regressions, again following Baron and Kenny's (1986) four-step process to establishing mediation. Both perceived social support (continuous scores on the MSPSS) and perceived social support valence (continuous scores from the SAQ) will be predicted from continuous scores on the ERNS general numbing and positive emotion subscales (dependent variables) and EQ (mediating variable). A Sobel test of mediation will then be used to determine the significance of EQ's mediation effect.

Table 1

Research Questions, Hypotheses, Variables, and Methods of Analysis

Research Question	**Hypothesis**	**Independent/ Predictor variables**	**Dependent/ Criterion variables**	**Data analysis**
1) What is the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?	There will be a significant ($\alpha \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the *PTSD CheckList – Civilian Version* (PCL-C) and empathic capacity as measured by the *Empathy Quotient* (EQ)	**Variables** • PTSD symptom severity - *PTSD CheckList – Civilian Version* (PCL-C), full scale and subscales • Empathic Capacity - *Empathy Quotient* (EQ)		Two-tailed Pearson Correlations

2) What is the relationship between PTSD symptom severity and the perceived availability and valence of social support in female survivors of interpersonal trauma?	a. There will be a significant ($\alpha \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the PCL-C and perceived social support availability as measured by the *Multidimensional Scale of Perceived Social Support* (MSPSS). b. There will be a significant ($p \leq 0.05$) inverse relationship between PTSD symptom severity as measured by the PCL-C and perceived valence of social support as measured by the S*ocial Acknowledgment Questionnaire* (SAQ).	**Variables** • PTSD symptom severity - *PTSD CheckList – Civilian Version* (PCL-C), full and subscales • Perceived Social Support Availability - *Multidimensional Scale of Perceived Social Support* (MSPSS) • Perceived Valence of Social Support - *Social Acknowledgment Questionnaire* (SAQ)	Two-tailed Pearson Correlations

Research Question	**Hypothesis**	**Independent/ Predictor variables**	**Dependent/ Criterion variables**	**Data analysis**
3) Does affective numbing mediate the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal trauma?	a) Positive emotional numbing as measured by the positive numbing subscale *Emotional Reactivity and Numbing Scale* (ERNS) will significantly ($p \leq 0.05$) mediate the relationship between PTSD symptom severity as measured by the PCL-C and empathic capacity as measured by the EQ in female survivors of interpersonal trauma. b) General emotional numbing as measured by the general numbing subscale *Emotional Reactivity and Numbing Scale* (ERNS) will significantly ($p \leq 0.05$) mediate	• PTSD Symptom Severity - *PTSD CheckList – Civilian Version* (PCL-C), full scale **Mediating Variable** • Affective Numbing- *Emotional Reactivity and Numbing Scale* (ERNS), General numbing and Positive emotion subscales	• Empathic Capacity- *Empathy Quotient* (EQ)	Linear Regressions following Baron and Kenny's causal steps model, confirming mediation with a Sobel z-test of mediation

	the relationship between PTSD symptom severity as measured by the PCL-C and empathic capacity as measured by the EQ in female survivors of interpersonal trauma.			
Research Question	**Hypothesis**	**Independent/ Predictor variables**	**Dependent/ Criterion variables**	**Data analysis**
4) Does empathic capacity mediate the relationship between affective numbing and perceived social support availability and/or social support valence in female survivors of interpersonal trauma?	a) Empathic capacity as measured by the EQ significantly ($p \leq 0.05$) will mediate the relationship between affective numbing as measured by the ERNS general numbing and positive emotion subscales and perceived social support availability and valence as measured by the MSPSS and SAQ respectively.	• Affective Numbing- *Emotional Reactivity and Numbing Scale* (ERNS), general numbing and positive emotion subscales	• Perceptions of Social Support Availability- *Multidimen-sional Scale of Perceived Social Support* (MSPSS) • Perceptions of Valence of Social Support- *Social Acknowle*	Series of Univariate and Multivariate Linear Regressions following Baron and Kenny's causal steps model.

		Mediator Variable • Empathic Capacity- *Empathy Quotient* (EQ)	*dge-ment Question naire* (SAQ)	

Pilot Study

A pilot study was conducted for the primary purpose of beta testing the instruments, instrument instructions and data collection procedures. As such, the pilot study was used to determine if procedural adjustments were warranted to strengthen the methodology of the full study and increase participant involvement. Such considerations as the following were examined: wording and clarity of the informed consent, instructions and assessments; order of the assessments; content of the demographic questionnaire; method of assessment (e.g., pencil and paper versus electronic); degree of emotional distress evoked in participants; and time requirements. Given the sensitive nature of this survey, targeted feedback was requested regarding the wording and content of the informed consent, instructions, and *Stressful Life Events Questionnaire* in hopes of maximizing the comfort level and disclosure of participants. Furthermore, although the sample size was insufficient as to draw conclusions from the data, a supplementary purpose of the pilot study was to develop a functional database for the full study and examine question format and response coding from an assessment perspective.

Implications drawn from the pilot research include possible modifications to instrument wording and procedures for the full study.

Instrumentation

Pilot study participants were asked to complete the packet of eight assessments (see Appendix A) planned for use in the full study, which included the demographics questionnaire, the *Stressful Life Events Screening Questionnaire- Revised* (SLEQ-R; Goodman, et al., 1998), *PTSD Checklist – Civilian Version* (PCL-C; Weathers, et al., 1993), *Multidimensional Scale of Perceived Social Support* (MS-PSS; Zimet, et al., 1988), *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004), the *Social Acknowledgment Questionnaire* (SAQ; Andreas Maercker & Müller, 2004) , and the *Emotional Reactivity and Numbing Scale* (ERNS; Orsillo, et al., 2007). Four participants completed the electronic version of the study (e.g., one participant completed the study on an I-pad™ and three completed the assessments on desktop computers) and six completed the paper-based format of the assessments. A semi-structured interview (see Appendix A), designed specifically for the pilot study, was also used to garner feedback from all participants regarding their experiences completing the assessments. Although sample sizes were too small to conduct formal analyses, Cronbach's alpha reliability coefficients, as seen in Table 2, were calculated for each standardized scale.

Table 2

Cronbach's Alpha Reliability Coefficients for Standardized Pilot Assessments

Scale	Items	Alpha Coefficient
CESD-10	10	0.83
PCL-C	17	0.92
Re-experiencing	5	0.91
Avoid/Numbing	7	0.67
Hyper-arousal	5	0.82
MSPSS	12	0.91
EQ	60	0.91
SAQ	16	0.76
ERNS	62	0.85
Positive	26	0.85
General	8	0.66

Participants

Participants included 10 female survivors recruited through volunteer sampling from two survivor support groups at a social services agency in the triad region of North Carolina. Survivors were attending the groups either voluntarily or were court mandated for custody purposes. Participants were required to be a minimum of 18 years of age and gave experienced at least one experience of sexual or partner violence as an adult (i.e., since the age of 18), however, as with the full study, no other exclusion criteria were used for the pilot sample. The sample proved quite diverse across all demographic variables. Age of participants ranged from 22 to 50 with the mean age equaling 37.4 (SD = 9.52). Three participants identified as white or Caucasian, four identified as black or African

American, and three indicated that they were of two or more races. Further demographic data for all pilot participants are presented in Table 3.

Table 3

Demographics of Pilot Study Participants

Demographic Characteristic	***n***	**%**
RELATIONSHIP STATUS		
Single, never married	4	40.0
Married or Domestic Partnership	2	20.0
Dating, Living Together	1	10.0
Dating, Not Living Together	1	10.0
Separated/Divorced	2	20.0
TOTAL	10	100.0
EDUCATION LEVEL		
Some High School	1	10.0
Graduated High School	2	20.0
Trade School	1	10.0
Some College	4	40.0
BS/BA	1	10.0
MS/MA/EDS	1	10.0
Total	10	100.0
HOUSEHOLD INCOME		
Under $10,000	3	30.0
$10,000 - $24,999	3	30.0
$25,000 - $49,999	3	30.0
$50,000 - $74,999	1	10.0
Total	10	100.0

With regard to past psychotherapeutic history, all participants had sought out previous mental health counseling, psychological or psychiatric treatment, which is not unexpected given the research setting. The majority of the survivors (n = 6, 60 %) attended counseling more than 10 times, and most of those who had attended counseling had seen someone within the past week (n = 6, 60%). Three of the women (30%), however, had not seen a therapist in over a year. Of the women who participated in the pilot, half (n = 5, 50%) were taking some form of psychotropic medication, with three participants (30%) taking up to three psychotropic medications concurrently. Medications included Serotonin Selective Reuptake Inhibitors (SSRIs), benzodiazepines, Bupropion (an atypical antidepressant), and Quetiapine (an atypical antipsychotic).

Levels of Depression. Although statistical analyses were not conducted, those women who were taking medications generally rated themselves higher on levels of depression than did those who were not (CESD scores of 17 and 11 respectively). Furthermore, all but two participants reached clinically significant levels of depression (CESD score of 10 or more). The mean CESD score for the sample equaled 14.3 (*SD* = 5.77) with a range from two to 21.

Types of Trauma Experienced. Of the sampled survivors, all had experienced physical violence as an adult by a partner or date on more than one occasion. Four women had experienced physical violence ten or more times. The majority (n = 8, 88.9%) likewise experienced sexual violence as an adult and most often by a romantic partner (n = 5, 62.5 %). One participant experienced sexual violence at the hands of a stranger and another by a date. Most respondents endured sexual victimization on one occasion (n = 4,

50%) but three others experienced SV from two to four times and one survivor endured such victimization on more than 10 occasions. Furthermore, all survivors had experienced psychological abuse, most often as an adult (n = 6, 60%) by a romantic partner on more than ten occasions.

The majority of participants likewise experienced childhood physical violence (n = 6, 60%) on more than 10 occasions (n = 3, 50%), yet only two (5%) reported *physically forced* sexual violence as a child from two to four times. The latter two individuals, however, indicated that the most recent time the childhood sexual violence occurred was at ages 29 and 43, which are clearly not during childhood. As such, it is unclear whether it occurred as both a child and adult. Two of the ten women did not respond to the question regarding physically forced acts of sexual violence as a child or adult. Interestingly, six of the ten respondents furthermore indicated that other than the occasions of physically forced sexual violence they had likewise experienced from two to four incidences of an individual touching private parts of their body, making them touch the perpetrator's body, or trying to make them to have sex against their wishes. One such occasion occurred when the survivor was eight years old, yet the other nine women experienced such acts as an adult. In addition to interpersonal violence, all participants had experience at least one additional type of trauma as recorded by the SLEQ. Table 4 depicts the distribution of additional trauma types.

Table 4

Pilot Participant Exposure Rates to Non-interpersonal Forms of Trauma

Trauma Type	*n*	%
LIFE-THREATENING ILLNESS		
No	8	80.0
Yes	2	20.0
TOTAL	10	100.0
LIFE-THREATENING ACCIDENT		
No	8	80.0
Yes	2	20.0
Total	10	100.0
PHYSICAL FORCE IN A ROBBERY OR MUGGING		
No	8	80.0
Yes	2	20.0
Total	10	100.0
DEATH OF IMMEDIATE FAMILY MEMBER, ROMANTIC PARTNER OR CLOSE FRIEND		
No	2	20.0
Yes	8	80.0
Total	10	100.0
MISCARRIAGE		
No	5	50.0
Yes	5	50.0
Total	10	100.0
THREATENED WITH A WEAPON		
No	3	30.0
Yes	7	70.0
Total	10	100.0

MILITARY COMBAT OR WARZONE		
No	10	100.0
Yes	0	0.0
Total	10	100.0
OTHER EXTREMELY FRIGHTENING OR HORRIFYING SITUATION		
No	1	10.0
Yes	9	90.0
Total	10	100.0

PTSD Symptom Severity. With regard to PTSD symptom severity, all survivors reached clinically significant levels of PTSD symptom severity (PCL-C scores from 30-35) for general population samples. Furthermore, all but three reached the most stringent suggested PCL-C cutoff (scores from 45-50) for specialty PTSD mental health clinics. The mean PCL-C score in the present sample was 53.5 (SD = 15.09) with scores ranging from 35 to 75.

Procedures

Following approval from the Institutional Review Board at The University of North Carolina at Greensboro (see Appendix B), the researcher attended two psychotherapeutic support groups for survivors of partner violence at a social services agency in a mid-sized city of central North Carolina. Upon introducing the study to potential participants using the Study Information Sheet (see Appendix D) all survivors voiced interest in participating and were subsequently given the IRB approved consent form (see Appendix C). All survivors in attendance at the two support groups consented to participate. All participants were given the option of completing the paper or electronic

version of the assessment packet. Each participant was provided a participant number at the onset of the study that was listed on the top of the paper assessments for each participant. All responses remained anonymous and were only identifiable by that participant number. All instructions were provided on the assessments, but instructions specific to the pilot study were provided verbally. Such instructions included that the survivors were to ask the researcher if any questions surfaced for them as they completed the assessments. The time that each participant began and completed the assessment packet was timed to obtain an average of the time requirement for study completion. Following completion of the assessments, all participants in each group were brought back together and asked a set of ten semi-structured interview questions about their experiences completing the assessments and recommendations for future participants. Ten dollar gift cards were given to all participants at the conclusion of the study. The specific nature and idiosyncrasies of each group are presented below.

Group One. Of the two survivors attending the first group, one chose to complete the assessment in paper and one on the computer (desktop). Both participants completed the assessments in the same room and were given general pilot study instructions simultaneously. The child of one participant was in the room during the study and intermittently interrupted the respondent. Furthermore that same respondent answered her cell phone during the study. Following completion of the assessments, the semi-structured interview was completed concurrently with both survivors.

Group Two. Of the final eight participants, three chose to complete the electronic version of the study (two on desktop computers and one on an iPad®) and five chose to

take the paper-based assessments. All five participants taking the paper version of the assessment and one of the participants taking the desktop electronic version completed the assessments in the same room. The other two participants taking the assessments electronically completed the assessments in semi-private locations outside of the main room, due to computer and wireless accessibility. All but one participant commenced the assessments in tandem. One survivor came to the group late and was provided instructions separately. Intermittent talking, laughing and side conversations occurred in the main group room while survivors responded to the assessments. Upon completion of the assessments by all eight survivors, the semi-structured interview questions were again asked in a group setting.

Database Development and Descriptive Analyses

All data was entered into Version 20 of SPSS statistical analysis software to analyze descriptive statistics on demographics data as well as on the two diagnostic questionnaires. The database was likewise used to calculate the aforementioned alpha reliability coefficients for each standardized scale and to assess the implication of question and response format on data analyses. Furthermore, data were assessed for incomplete responses sets on any self-report measures as indication of potential difficulty or discomfort with particular questions.

Results and Implications

The pilot data yielded valuable information about time requirements and potential methodological challenges for the full study. The responses to the semiscructured interview questions were collated presented below in accordance with the order of the

interview. Results regarding time requirements and participant feedback are then followed by a report of researcher observations made during database construction (i.e., data coding and entry). A record of all study changes are presented in Table 5.

Time Requirements. The study, containing 206 questions, was estimated to take approximately 45 minutes to complete. Interestingly, however, most respondents required considerably less time to complete the eight assessments. Across all participants, the average time required for study was 33.4 minutes (*SD* = 7.73 minutes), with a range from 22 to 45 minutes. Computer-based responders (n = 4) averaged 35.8 minutes (*SD* = 11.29) and participants completing the paper-based form of the assessment packet (n = 6) required an average of 31.8 minutes (*SD* = 4.87). The individual completing the assessment on the iPad™ required the least amount of time to complete the assessments, namely 22 minutes. Such results indicate considerably more variation in the time requirements for the online version of the assessments, most likely owing to variations in computer proficiency.

Motivation to Participate. Participant responses concerning motivation to participate varied considerably. Most individuals (n = 6) indicated that they wanted to help other women in similar situations. Others (n = 2) also indicated they were curious as to what the survey was asking and what they may find out about themselves. One other participant suggested that she wanted to educate others about her experience and the experiences of women in her situation. A final participant indicated that she was influenced by the gift card compensation. Although three participants indicated initial reservations about participating due to concerns over confidentiality, these women further

indicated that once they learned more about the study and read the informed consent it made them feel more comfortable, but they would feel even more comfortable if they did not have to provide their names. As such, a waiver of *signed* informed consent has been requested for the full study.

Desire to Stop Participation. No participant indicated wanting to stop participating at any time. Two participants referred to the survey as interesting. Two individuals (one paper-based and one computer-based) indicated that some of the questions seemed repetitive. Another individual (computer-based survey) indicated that the survey was "kind of a lot" and seemed long when she was getting close to the end. Each followed their comments, however, by stating that this did not make her want to stop taking the survey. The latter participant also suggested that it may helpful to increase the font size and put less on each page. Other participants (both paper and computer-based) agreed with this suggestion. As a result the font size was increased on both the paper and electronic survey and extra space was added between questions on the Likert questionnaires.

Emotional Distress. The questions regarding emotional distress elicited considerable and provocative conversation. All women indicated some form of emotional response to the study, especially questions on the SLEQ. Four other women reported emotional responses to the questions regarding social support, with all four indicating that thinking about the lack of support and deterioration of relationships with family members in particular was upsetting. Furthermore three participants (two in group one and one in group two) responded that they, "actually thought it was going to be worse."

On a scale from one to four with one being the least emotionally distressing, the average rating for distress among all participants was a 2.4 with a median score of two.

An interesting conversation occurred among evening participants regarding the nature of the distress they experienced. The women in this group almost all agreed with one participant's sentiment that, "It was good to feel these feelings," as it reminded her of the clear changes she has made. Two other women continued this response by suggesting that it made them think about changes that they still wanted to make in their lives. One final participant (who was new to the group) indicated, however, that she wanted to blame herself for continuing to be a victim. As such, it appears as if the level of distress may in part be related to the degree of present and previous counseling or therapy in which the survivor has engaged. Every participant offered, however, that it was helpful to have the message both in the informed consent and on the SLEQ that completing the survey may elicit strong emotions.

When asked for suggestions on how best to further assuage the experienced distress, all participants agreed that it would be "great" to include an empowering statement with respect to the strength and community of survivors at the end of the survey. One woman offered that it would remind participants that they are indeed "survivors." To address this suggestion the researcher included an empowering poem at the end of the survey, which the researcher has used therapeutically with survivors.

Order and Clarity of Instructions and Questions. The participants broached several important points and areas of needed clarification when asked about the wording of instructions and questions and the order of the assessments. Firstly, respondents

indicated that the order of assessments was satisfactory. One participant responded that she liked having the demographics questions before the personal questions about past trauma, as in that way it did not feel immediately invasive. Three survivors (one completing paper and two computer-based formats) suggested that they appreciated having the longer questionnaires at the end, and continued by stating that if the longer questionnaires had been at the beginning they may have been more likely to become discouraged and want to stop the survey. The participants likewise had feedback about the clarity of specific questions, most notably in response to the SLEQ.

Stressful Life Events Screening Questionnaire. Most of the inquiries concerning the SLEQ were related to the questions about interpersonal trauma. One respondent noted that there was no option for *spouse* as the perpetrator of the interpersonal violence. She stated that she recognized that many would equate spouse with the *romantic partner* response choice, but that she never considered her husband a romantic partner even though they were married. As such, for all response choices that designate *romantic partner* as a possible perpetrator the response choice was changed to *spouse or romantic partner*. Similarly, with regard to the questions related to perpetrator, one survivor mentioned that it would be helpful to have an open blank next to the *other* response choice for the survivors to fill in the responsible individual. Consequently, such a space for an open response was provided next to this option.

Furthermore, another respondent indicated that she preferred the use of the word molestation to describe her experiences of childhood abuse and resultantly she had difficulty determining how best to respond to the questions, as it was not forced

intercourse per se. She stated that she thought it may be better to include her experience in the latter question asking about any other experiences of unwanted sexual touching, but that she chose not to respond to those questions. The most apposite language to use when assessing for sexual violence and childhood sexual abuse in particular is a matter of considerable debate in the literature. Such experiences are very personal and each survivor may describe her experience using different language with which she feels most comfortable and that she feels best describes her experiences. Not providing an a priori label to such experiences is furthermore an important part of the empowerment model when working with survivors. The researcher had considerable discussions with practitioners at NCCASA about these questions and deemed that although the term *physical force* is not agreed upon by all, it is currently being used as best practice in assessment, and that adding a label such as molestation may further alienate some respondents. Moreover, having the subsequent question (question eight) about additional unwanted sexual experiences may serve to distinguish respondents who may not have identified with the notion of physical force. As such, no changes were made to the wording of either question six or seven relating to childhood and adult sexual assault respectively.

Three participants additionally asked about the nature of *weapon* in question twelve. The respondents noted that the question gives a gun and knife as examples but suggested that anything can be used as a weapon and provided examples of seemingly banal objects that had been turned into severely injurious weapons in their own lives. As

a result, in question twelve the text *like a knife or gun* was removed and the following text included: *this includes any object that you perceived as a weapon*.

Two other participants noted that questions three (i.e., a robbery or mugging) and five (i.e., death of someone close) on the SLEQ asked at what age the event had occurred, but did not ask about the *most recent time* as did the ensuing questions about age. Both women had experienced such traumas on multiple occasions and did not know how best to respond to these questions. Thus these two questions were reworded so that all questions regarding age used analogous text about the most recent time the event had occurred. Moreover, with respect to questions asking about when the event occurred, several survivors mentioned that it was difficult to think of the exact age that an event had occurred. One survivor suggested adding the word *approximately* and another suggested adding age ranges as response choices for these questions. The word approximately was added to all response choices regarding the age of the survivor at the time of the most recent trauma. One survivor further mentioned that by asking about the most recent time only, it may feel to some survivors as if the previous events were not as significant. As such, the survivor suggested adding an open-ended text box at the end of the questionnaire for the respondent to add anything additional that she wanted to share or felt was necessary. As such, an additional question was added to the SLEQ that provided space for the survivor to include any additional information if she desired.

Social Acknowledgement Questionnaire. One survivor noted that the instructions for this assessment were missing a word. As such, the researcher amended the instructions to state, “The next set of questions asks you about other people's reactions to

you following your experiences of interpersonal violence." No other difficulties were reported with this assessment.

Empathy Quotient. As this questionnaire was authored in British English, several respondents had questions regarding the meaning of phrases or words used in the EQ, specifically in questions one, eight and sixteen. However, two of the three survivors stated, "I think I know what it is asking, but…" suggesting that although there was some confusion, the general meaning of the question was ascertained. Given concerns over how text changes may alter the reliability and validity of the assessment, the researcher chose not to amend any text on the EQ.

Compensation. The participants all agreed that ten dollars was sufficient compensation for involvement in the study. Three participants indicated that they would have completed the study for free as they felt that it was "that important." All participants indicated that they would prefer a gift card over and above self-care products, and that a gift card to a store selling a wider variety of products would be more appreciated than a gift card to a store relating to self-care. The four individuals completing the online version of the study suggested that an online gift card may be more suitable for those who complete the online version.

Advice to Future Participants. When asked what advice the participants would give to potential survivors completing the survey, their responses overwhelmingly revolved around being honest. One participant stated, "I would tell them to answer as honestly as possible. If we all work together toward a common goal, we can possibly make a difference." She likewise suggested that it may be good to have a message about

this at the beginning of the study. As such, the researcher asked the survivor if her quote could be used anonymously for this purpose, to which the survivor agreed. The researcher, in response to hearing similar messages concerning honesty in the evening group, purposed the use of the first survivor's quote at the beginning of the survey. All participants in this group assented to this being representational of their sentiments and agreed that it would be useful to have at the beginning and may even help with the sense of creating solidarity among survivors that was expressed during the discussion on emotional distress caused by the survey. To this, another participant responded that she would tell other survivors: "Don't just think it's a survey. It will take you somewhere. You need to feel and identify with the questions."

Additional Comments. Participants also offered comments individually, outside of the group interview setting. Two participants (one in group one and one in group two, both completing the computer-based format) included that they appreciated having an online option and that it may be helpful for those women who have access to the internet and may want to complete the survey quickly and in a private setting. Another participant stated that she would have preferred to complete the survey at home on her own as she felt like she could have concentrated better (in response to the intermittent talking and discussions) and would have been able to provide more accurate answers. When asked what she was inferring by the latter, the participant stated that she would have been better able to "put herself in that place" to respond to the questions rather than being distracted by the extraneous conversation. Such feedback suggests that some survivors may prefer a more individual and private environment to complete the assessments rather being asked

to complete the survey in a group setting. As such, the following message regarding the survivor's ability to choose her preferred location for completing the assessments was included in the introductory page of the survey: "Please complete this survey in a setting that you feel is safe and comfortable and provides you with the privacy to complete the questions openly and honestly."

Data Entry and Database Development Concerns. Upon constructing the database and data cleaning for preliminary analyses, the researcher noted several concerns that warranted modifications to the study assessments and procedures. On the demographics form, the order of the responses for question thirteen was changed on the paper-based version of the assessment to be consistent with the online version and all other yes or no response sets in the study. The SLEQ, however, posed the greatest challenge in analyses. Similarly to the demographics form, the order of all yes or no responses were reversed on the paper-based format to be consistent with the online format and all other yes-no study responses. Furthermore, several participants seemed to confuse the questions asking about sexual and physical abuse both as a child and adult or to disregard the qualifications for the age ranges applied to each. On questions six, two participants responded that they did experience sexual abuse as a child, but when asked the age at which this last happened they reported ages well beyond 18 years old. As a result, the age range to which each question applies (when designated) was both bolded and underlined in the SLEQ for the full study. Similarly, to circumvent potential confusion with recognizing separate incidences of trauma on questions that ask about events other than those already reported, underlining and italics were added to the initial

other than clauses for each question. Lastly, the researcher noted that the order of the response choices for the perpetrator sub-question in question eleven regarding emotional abuse was different from other perpetrator questions. As such, the order of responses on both the paper and online versions were reordered to be consistent across questions.

Several additional changes were made to study methodology following continued consideration of the data and in preparation for the full study ethical review. Given feedback from a committee member and expert in the field of partner violence and battering, the *Women's Experience with Battering Scale* (WEB; Smith, et al., 1995) was added to better capture the psychological victimization and oppressive experiences of survivors in current and past partnerships. In addition, noting the oversight in excluding emotional or psychological violence in the participant and study descriptors on the Informed Consent, Study Information and Study Recruitment documents, additional language was added to include this form of violence in these documents. Furthermore, after further considering the literature on dating violence and the preponderance of dating violence that occurs between the ages of 16 and 18 years of age (Amar & Gennaro, 2005; Silverman, et al., 2001; U.S. Department of Justice, 2001), the researcher chose to extend the age range for acts of interpersonal trauma to include any form of interpersonal trauma that has occurred since the age of 16 rather than since the age of 18 as was used in the pilot study. The required minimum age of participants, however, will remain at 18 years of age.

Additional Study Changes

An important consideration of the researcher was to design and conduct the study in a manner that would ultimately be beneficial and provide useful insights to the practitioners around the state who work directly with survivors. Such community-informed research aims to bridge the research-practice gap by working with practitioners from the onset of a study to help inform study design. As such, additional study changes were considered and changes made following discussions with leaders of the North Carolina Coalition against Sexual Assault. In addition to providing insights into participant recruitment strategies and wording of the interpersonal violence assessment questions within the SLEQ, NCCASA suggested that information on sexual orientation would be beneficial to the organization as well as gaining survivors' feedback on service provision and satisfaction. Thus, a question regarding sexual-affectional orientation was included in the demographics questionnaire, and two additional questions were developed asking survivors about which post-assault services they had accessed and what other services they wish had been available to them at that time. Following the completion of the study, a formal report of the findings will be presented to NCCASA and the study results will be prepared in a user-friendly format for practitioners.

Table 5

Complete Listing of Study Changes Given Insights from the Pilot Study

STUDY INTRODUCTION:

1. Added the following survivor quote from the pilot interview: "*Answer as*

honestly as possible. If we all work together toward a common goal, we can possibly make a difference."

DEMOGRAPHICS FORM:

1. Added a question regarding sexual-affectional orientation.
2. Changed the response order for question thirteen [Are you currently taking any medications for any psychological (i.e., mental) concerns?] on the paper format to be consistent with online version and with other Yes or No response choices.

SOCIAL ACKNOWLEDGMENT QUESTIONNAIRE:

1. Reworded the instructions to align with the assessment.

STRESSFUL LIFE EVENTS SCREENING QUESTIONNAIRE- REVISED:

1. Changed all perpetrator response options from *Romantic Partner* to *Spouse or Romantic Partner*
2. Changed all questions that asked about age at the time of the trauma to the following: "If yes, *approximately* how old were you the most recent time it occurred (in years)?"
3. Reworded question twelve [Other than the experiences already covered, has anyone ever threatened you with a weapon like a knife or a gun?] to the following: "Other than the experiences already covered, has anyone ever threatened you with a weapon (this includes any object that you perceived as a weapon)?"
4. A blank line was included following the *Someone Else* response choice on all perpetrator questions.
5. The order of all yes or no responses was reversed on the paper-based format to be consistent with the online format and all other yes-no study responses.
6. The age range to which each question applies was both bolded and underlined on those questions distinguishing between adult and childhood violence.
7. Underlining and italics were added to the *other than* clauses for each question asking about events other than those already covered.
8. The order of responses in the perpetrator sub-question of question eleven on both the paper and online versions were reordered to be consistent across questions.

OVERALL ASSESSMENT FORMAT:

1. Increased the spacing and font size on all assessments.

STUDY CLOSING:

1. Added an empowering poem to the end of the assessment packet.

METHODOLOGICAL CHANGES:

1. Minimum age of inclusion for the age at which experiences of interpersonal violence occurred was lowered from 18 to 16 years of age.
2. The WEB scale was included to better conceptualize the battering faced by survivors.
3. Two additional service provision questions were included at the end of the study.
4. Electronic gift cards will be offered for online participants.

INSTITUTIONAL REVIEW BOARD DOCUMENTS:

1. Emotional or psychological violence was added in the language used in the participant and study descriptors on the Informed Consent, Study Information and Study Recruitment documents.

Pilot Limitations and Summary

Several limitations were present in the pilot methodology that potentially limited the generalizability of finding to the broader sample with which the full study will be conducted. All of the participants in the pilot were attending treatment groups for survivors of intimate partner violence. Thus, not only had all of the individuals received some sort of counseling or psychotherapy in relation to their experienced trauma, they were all survivors of partner violence. As such, the feedback from these survivors may not be representative of women who have experienced a single episode sexual assault or those who have not attended any form of counseling or psychotherapy. Furthermore, given the group setting in which the post-assessment interview was conducted, some participants may not have felt comfortable providing open and honest feedback about

their experiences with the survey in front of their peers or the researcher. Despite such potential limitations, considerable and influential feedback was received and notable changes made to the full study as a result of the pilot research. Their feedback likewise provided encouragement to the researcher for her passion and continued efforts to help support and empower survivors of interpersonal violence.

CHAPTER IV

RESULTS

The purpose of this causal comparative study was to assess the relationships between PTSD symptom severity, empathic capacity, emotional numbing and perceptions of social support availability and valence in female survivors of interpersonal violence. Specifically this study sought to identify the mediating roles of empathic capacity and emotional numbing in the relationship between PTSD symptom severity and perceptions of social support. This chapter contains the detailed results of the analyses conducted to test the study hypotheses presented in Chapters I and III. The chapter begins with an overview of the study sample, including demographics descriptors, psychotherapeutic history, and experiences of trauma across the lifespan. Descriptive statistics for each of the standardized assessments used in the study are a likewise presented, including ranges, means, standard deviations and the alpha reliability coefficient. Complete results of the statistical analyses used to test each hypothesis, an examination of the potential confounding effects of depression, and an overview of all study results conclude the chapter.

Description of Study Participants

Participants for this study were recruited through volunteer sampling from professionals and agencies associated with the North Carolina Coalitions Against Sexual Assault and Domestic Violence (NCCASA and NCCADV, respectively). Participants were directly recruited from nine agencies across the state who voiced specific interest in participating following initial contact from the state coalitions. Two independent professionals likewise provided information to potential participants. Due to the anonymity of the online version of the survey, however, the exact reach and extent of involvement of state-wide professionals and agencies is difficult to determine.

A total of 68 individuals completed the paper-based version of the study and an additional 23 participants completed the survey online, for an overall total of 91 participants. Of these, one participant was excluded for being male, and a second was excluded due to a failure to indicate a history of any interpersonal violence and a minimum total on the WEB scale. An additional eight participants did not complete the CESD-10 assessment due to an oversight in survey administration, resulting in a final sample size of 81 female survivors of interpersonal violence.

Demographics

The final sample, inclusive of the 81 total valid surveys, proved relatively diverse across most demographic variables. The age of participants ranged from 18 to 66 with the mean age equaling 34.7 (*SD* = 11.02). The majority of the sample identified as either white or Caucasian (n=40, 49.4%) or Black or African American (n=29, 35.8%). An additional four women identified as Hispanic or Latino, one as American Indian or

Alaska Native, one as Asian and the remaining five indicated that they were of two or more races. The sample further identified as predominantly heterosexual (n=72, 88.9%), with the majority of participants indicating that they were either single/never married (n=25, 30.9%), or separated/divorced (n=24, 29.6%). In addition, just over one-third of participants had completed at least some college (n=32, 39.5%) and the majority reported having an annual household income of under $10,000 (n=44, 54.3%). Furthermore, English was selected as being the primary language of all but two participants. Each of these participants, however, ranked their comfort with the English language as nine and 10 respectively on a scale from 1 (Not at all comfortable) to 10 (Extremely comfortable).These and further demographic data for the study participants are presented in Table 6.

Table 6

Demographic Description of Full Study Participants

Demographic Characteristic	***n***	**%**
ETHNICITY		
Hispanic or Latino	4	4.9
White or Caucasian	40	49.4
Black or African American	29	35.8
American Indian or Alaska Native	1	1.2
Native Hawaiian or Other Pacific Islander	0	0
Asian	1	1.2
Middle Eastern	0	
Two or More Races	5	6.2
Missing	*1*	*1.2*
TOTAL	81	100.0
RELATIONSHIP STATUS		

Single, never married	25	30.9
Married or Domestic Partnership	14	17.3
Dating, Living Together	9	11.1
Dating, Not Living Together	8	9.9
Separated/Divorced	24	29.6
Widowed	1	1.2
TOTAL	81	100.0

SEXUAL-AFFECTIONAL ORIENTATION

Gay/Lesbian	0	0
Heterosexual	72	88.9
Bisexual	8	9.9
Other:		
Queer	1	1.2
TOTAL	81	100.0

EDUCATION LEVEL

Grade School	1	1.2
Some High School	13	16.0
Graduated High School	8	9.9
Trade School	1	1.2
Some College	32	39.5
BS/BA	11	13.6
Some Graduate School	3	3.7
MS/MA/EDS	5	6.2
MD/JD/PhD	2	2.5
Other:		4.9
GED	2	
Associate's Degree	2	
Missing	*1*	*1.2*
TOTAL	81	100.0

HOUSEHOLD INCOME		
Under $10,000	44	54.3
$10,000 - $24,999	17	21.0
$25,000 - $49,999	11	13.6
$50,000 - $74,999	8	9.9
$75,000-$100,000	1	1.2
Total	81	100.0

Psychotherapy and Psychopharmacotherapy

With regard to past psychotherapeutic history, all but six participants (n=73, 90.1%) had received previous mental health counseling, psychological or psychiatric treatment. The majority of survivors who had attended counseling attended more than 10 times (n = 41, 50.6%), and a third had seen a counselor within the past week (n = 31, 38.3%). Fourteen survivors (17.3%) had not seen a therapist in over a year. Although only half (n= 44, 54.3%) had received therapy specifically addressing their experiences of interpersonal violence, nearly two-thirds (n=51, 63.0%) considered her therapist to be a primary source of social support.

In addition to psychotherapy, almost half (n = 37, 45.7%) indicated that they were taking some form of psychotropic medication, with thirty-three of those participants (89.1%) listing the specific medications that had been prescribed. Of those taking medication, the number of distinct medications concurrently being taken ranged from 1 to 9, with the average number of medications consumed equaling 2.27 (*SD* = 1. 60). Medications included Serotonin Selective Reuptake Inhibitors (SSRIs), benzodiazepines, Bupropion (an atypical antidepressant), a series of anticonvulsant medications commonly used as a atypical mood stabilizers, psychostimulants, as well as Hydroxyzine,

Quetiapine and Paliperidone (atypical antipsychotics). The majority of those who listed medications (n=23, 69.7%) were taking some form of antidepressant. Complete demographic data regarding psychotherapy and psychopharmacotherapy are provided in Table 7.

Table 7

Counseling History of Full Study Participants

Counseling Characteristic	***n***	**%**
PSYCHOTHERAPY (*Present or Past*)		
Yes	73	90.1
No	6	7.4
Missing	*2*	*2.5*
TOTAL	81	100
NUMBER OF TIMES		
Less than 3 times	6	8.2
3-5 times	13	17.8
5-10 times	13	17.8
More than 10 times	41	56.1
TOTAL	73	100.0
TIME SINCE LAST SESSION		
Days	31	42.5
Weeks	15	20.5
Months	13	17.8
Years	14	19.2
TOTAL	73	100.0

COUNSELOR AS PRIMARY SUPPORT		
Yes	51	69.9
No	22	30.1
TOTAL	73	100.0
FOR INTERPERSONAL VIOLENCE		
Yes	44	54.3
No	33	40.7
Missing	*4*	*4.9*
TOTAL	81	100.0
PSYCHOPHARMACOTHERAPY		
Yes	37	45.7
No	44	54.3
TOTAL	81	100.0

Levels of Depression

The mean CESD-10 score for the sample equaled 13.17 (*SD* = 7.08) with a range from 0 to 28. As such, the mean score for depression in the sample was above the threshold (CESD score of 10 or more) for clinically significant levels of depress. Overall, 66.7 % (n=54) of participants reached clinically significant levels of depression. An independent samples t-test suggested that those women who were taking medication reported higher levels of depression [$t(78)=2.99$, $p<0.01$] as compared to those survivors not taking psychotropic medications, with means of 15.6 (*SD*=7.01) and 11.0 (*SD*=6.54) and a ***Cohen's d*** effect size of 0.67. The Cronbach's alpha reliability coefficient for the CESD in the present sample will be provided in the subsequent section detailing the psychometric properties of the scales used in analyses.

Experiences of Interpersonal Trauma

The survivors in the study faced considerable acts of violence across their lifespans. Of the sampled survivors, 62 (76.5%) had experienced physical violence since the age of 16. The majority of these women (n=60, 97.7%) endured repeated acts violence at the hands of a partner or spouse, predominantly experiencing violence on more than 10 occasions. The majority (n = 48, 59.3%) likewise experienced sexual violence as an adult and most often by a spouse or intimate partner (n = 27, 56.2 %). Most respondents suffered sexual victimization on one occasion (n = 17, 35.4%) or from two to four times (n = 17, 35.4%) but six survivors (12.5%) endured such victimization on more than 10 occasions. Of the sample, 36 women (44%) had experienced both physical and sexual violence since the age of 16. Furthermore, over 80 percent of survivors (n=69, 85.2%) experienced psychological abuse during her lifetime, most often by a spouse or intimate partner (n=49, 71%) on more than ten occasions (n=58, 84.1%). Furthermore, well over 50 percent of the women (n=49, 62.0%) sampled scored higher than the threshold score of 19 on the WEB scale, indicating that they had experienced some degree of battering by a current or most recent partner. The majority of women (n=45, 55.6%) had experienced at least one indicator of battering by a past partner (other than the most recent partner).

Nearly half of the participants likewise experienced childhood physical violence (n = 36, 44.4%) on more than 10 occasions (n = 22, 61.1) and over one third (n=32, 39.5%) experienced forced sexual violence as a child, most often by a family member (n=15, 46.9%) on two to four occasions (n=11, 34.4%). Of those survivors who were

sexually assaulted as an adult, 25 (52%) had also experienced childhood physical abuse, 25 (46.9%) experienced physical abuse as a child, and 21 (43.8%) experienced other acts of sexual violence. Of those women who were physically battered as an adult, more than half (n=32, 51.8%) had also experienced childhood physical abuse, nearly half (n=28, 45.1%) endured sexual abuse as a child, and the majority (n=34, 54.8%) had experienced some other form of sexual victimization. A comprehensive description of the interpersonal violence experienced by survivors is presented in Table 8.

Table 8

Exposure to Interpersonal Violence by Trauma Type, Average Number of Times and Perpetrator

Trauma Type	*n*	%	Perpetrator	*n*	%	Times	*n*	%
SEXUAL VIOLENCE AS AN ADULT								
			Spouse or Intimate					
Yes	48	59.3	Partner	27	56.2	1 time	17	35.4
No	33	40.7	Date	5	10.4	2-4 times	17	35.4
TOTAL	81	100.0	Family Member	4	8.3	5-10 times	8	16.7
			Stranger	9	18.8	> 10 times	6	12.5
			Someone else	7	14.6			
PHYSICAL VIOLENCE AS AN ADULT								
			Spouse or Intimate					
Yes	62	76.5	Partner	60	97.7	1 time	4	6.5
No	19	23.5	Date	0	0	2-4 times	15	24.2
TOTAL	81	100.0	Family Member	2	3.2	5-10 times	12	19.4
			Stranger	0	0	> 10 times	30	48.8
			Someone else	1	1.6			
SEXUAL VIOLENCE DURING CHILDHOOD								
			Spouse or Intimate					
Yes	32	39.5	Partner	1	3.1	1 time	6	18.8
No	48	59.3	Date	1	3.1	2-4 times	11	34.4
Missing	*1*	*1.2*	Family Member	15	46.9	5-10 times	6	18.8
TOTAL	81	100.0	Stranger	3	9.4	> 10 times	8	25
			Someone else	10	31.2			

PHYSICAL VIOLENCE AS A CHILD[a]

Yes	36	44.4
No	45	55.6
TOTAL	81	100.0

1 time	0	0
2-4 times	6	16.7
5-10 times	7	19.4
> 10 times	22	61.1

ADDITIONAL SEXUAL VICTIMIZATION

Yes	42	51.9
No	38	46.9
Missing	*1*	*1.2*
TOTAL	81	100.0

Spouse or Intimate Partner	6	14.3
Date	4	9.5
Family Member	11	26.2
Stranger	6	14.3
Someone else	22	52.4

1 time	9	21.4
2-4 times	14	33.3
5-10 times	11	26.2
> 10 times	8	19.0

EMOTIONAL/PSYCHOLOGICAL VIOLENCE

Yes	69	85.2
No	12	14.8
TOTAL	81	100.0

Spouse or Intimate Partner	49	71.0
Date	1	14.5
Family Member	15	21.7
Someone else	3	4.3

1 time	0	0
2-4 times	4	5.8
5-10 times	5	7.2
> 10 times	58	84.1

WEB SCALE[b]

Range	**Mean**	**SD**	**Mode**	**N, Score>19**	**%, Score>19**
10-60	33.75	20.1	10	49	62.0

WEB SUPPLEMENT[c]

				Incident of Battering	
Range	**Mean**	**SD**	**Mode**	**n**	**%**
3-6	4.77	1.3	6	45	55.6

[a] The perpetrator of childhood physical abuse was not assessed.
[b] Higher scores indicate a higher degree of experienced battering by a present or most recent partner
[c] Higher score suggests a higher degree of experienced battering by a former partner

One facet of the interpersonal traumas that this sample of survivors experienced, namely the duration of time that has elapsed since the trauma(s) occurred, could not be effectively determined in the present study. Nearly 25% of the questions inquiring about the age at which the various interpersonal traumas last occurred were left blank by the participants. Informal feedback from participants indicated difficulty responding to these questions, as "all of the different times blur together," "it was too long ago to remember," and "I do not like to remember the details." Other participants included age ranges, making specific measures of time since the trauma occurred difficult to commute.

Experiences of Other Trauma Types

In addition to interpersonal violence, all participants had experienced at least one additional type of trauma as recorded by the SLEQ. Experiencing the unexpected and violent death of a family member, intimate partner or very close friend (n=39, 48.1%) and experiencing any other situation that was extremely horrifying or frightening (n=41, 50.6%) were the two most prevalent among the survivors sampled in the present study. Table 9 depicts the distribution of additional trauma types.

Table 9

Additional Exposure to Non-Interpersonal Forms of Trauma

Trauma Type	***n***	**%**
LIFE-THREATENING ILLNESS		
Yes	14	17.3
No	67	82.7
TOTAL	81	100.0

LIFE-THREATENING ACCIDENT		
Yes	23	28.4
No	58	71.6
Total	81	100.0
PHYSICAL FORCE IN A ROBBERY OR MUGGING		
Yes	15	18.5
No	66	81.5
Total	81	100.0
DEATH OF IMMEDIATE FAMILY MEMBER, ROMANTIC PARTNER OR CLOSE FRIEND		
Yes	39	48.1
No	42	51.9
Total	81	100.0
MISCARRIAGE		
Yes	32	39.5
No	49	60.5
Total	81	100.0
THREATEN WITH A WEAPON[a]		
Yes	36	44.4
No	45	55.6
Total	81	100.0
MILITARY COMBAT OR WARZONE		
Yes	6	7.4
No	75	92.6
Total	81	100.0
OTHER EXTREMELY FRIGHTENING OR HORRIFYING SITUATION		
Yes	41	50.6
No	40	49.4
Total	81	100.0

Note: [a] The majority of participants who had been threatened with a weapon reported being threatened between two to four times (n=16, 19.8%).

Descriptive Statistics for Standardized Scales

Results from the following five assessments were used in addressing the four research questions underlying the present study: *PTSD Checklist – Civilian Version* (PCL-C; Weathers, et al., 1993), *Multidimensional Scale of Perceived Social Support* (MS-PSS; Zimet, et al., 1988), *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004), the *Social Acknowledgment Questionnaire* (SAQ; Andreas Maercker & Müller, 2004) , and the positive numbing and general numbing subscales of the *Emotional Reactivity and Numbing Scale* (ERNS; Orsillo, et al., 2007). The *Center for Epidemiologic Studies Depression Scale- 10* (CESD-10; M. Irwin, et al., 1999) furthermore employed in follow-up assessments. All scales were initially examined for missing data and univariate normality. Upon completing a missing values analysis for each scale, it was found that no one question on any scale exceeded a missing rate of 5%. Notwithstanding the nominal rate of missing values, a Markov chain Monte Carlo multiple imputation with five imputations and a maximum iteration value of 10 was performed to account for all missing data in an effort to preserve the sample size of the study. As such the results of the hypothesis testing that follow are for data pooled across the five imputed datasets. For instances in which results were not pooled by SPSS for the standardized regression values manual averages were calculated across the values presented for each of the five separate imputations. Given the very minimal variance between the values across the five imputations and given a consistent degrees of freedom for each calculation, the author felt that this approach, although it did not account for

potential error induced by the act of imputing the data itself, did not introduce a preponderance of additional error into the calculations.

Assessments of univariate normality determined that all of the scales were univariate normal with both skewness and kurtosis between the accepted values of +/- 1, with the exception of the Reexperiencing and Avoidance-Numbing subscales of the PCLC. Each of these scales was found to be platykurtic with keurtosis values of -1.305 and -1.062 respectively. Although these scales did exceed the -1 threshold for univariate normality, both deviations were quite minimal and given the considerable disadvantages of data transformation, most notably in the interpretation of the data, the decision was made to not transform the Reexperiencing and Avoidance-Numbing subscales of the PCL-C for the Pearson product-moment correlations used in addressing research questions one and two. Furthermore, to assess for multivariate outliers, Mahalonobis distance was calculated for all regression analyses. No value was found to exceed the designated Chi-squared critical value for the degrees of freedom warranted in each analysis. Q-Q plots were also constructed for each variable and revealed that the SAQ appeared to have a single outlier, which was confirmed using a box plot. This outlier, however, was less than three standard deviations from the mean and did not appear to substantially affect other measures of normality and thus was retained in analyses.

Multicollinearity was also assessed by examining the intercorrelations between scales used in testing the research hypotheses. Although some correlations come close to the 0.80 threshold, particularly positive emotional numbing and general emotional numbing with a correlation of $r(79)=0.73$, there are no violations to this assumption of

normality. Furthermore, it is interesting to note that empathy shows a strong significant direct relationship with both the SAQ [r(79)=0.30, p<0.01] and the MSPSS [r(79)=0.29, p<0.01], but that the general numbing subscale of the ERNS is not significantly correlated with the MSPSS [r(79)=0.17, p>0.05]. Table 10 presents the correlation matrix between scales.

Table 10

Zero-order Bivariate Correlations between Study Scales

	EQ	ERNS_Positive	ERNS_General	MSPSS	PCL-C	SAQ
EQ	1	.525*	.420*	.294*	-.298*	.302*
ERNS_Positive		1	.733*	.297*	-.385*	.334*
ERNS_General			1	.170	-.466*	.220*
MSPSS				1	-.220*	.349*
PCL-C					1	-.421*
SAQ						1

Notes. EQ = Empathy Quotient; ERNS_Positive = Positive subscale of the Emotional Reactivity and Numbing Scale; ERNS_General = General subscale of the Emotional Reactivity and Numbing Scale; MSPSS = Multidimensional Scale of Perceived Social Support; PCL_C = Posttraumatic Stress Disorder Check List- Civilian Version; SAQ = Social Acknowledgment Questionnaire
Two-tailed, df=0.79
* significant at the $p<0.05$

The ranges, means and standard deviations were calculated for the total and subscales used in the forthcoming analyses. The mean for the PCL-C in the present sample was 50.4 (*SD* = 16.52), which is higher than the most stringent proposed threshold designating clinically significant PTSD (scores from 45-50) for specialty PTSD mental health clinics. Sampled survivors were also found to have a mean empathic capacity score on the EQ of 45.0 (*SD* = 13.25), marginally higher than the EQ PTSD

sample mean of 41.71 (*SD* = 17.70) found in Mazza et. al, (2012). Mean general numbing scores on the ERNS for the sample were 31.0 (*SD* = 6.34), with mean positive numbing scores of 102.6 (*SD* = 15.81). Although not assessed statistically, both the ERNS positive and general emotional numbing scores in the present sample appeared higher (higher scores designate less numbing) than in a previous sample of survivors [positive mean = 90.3 (*SD* = 18.3); general mean = 24.62 (*SD* = 7.8)] as well as the match sample of individuals without a history of trauma [positive mean = 97.98 (*SD* = 15.1); general mean = 28.25 (*SD* = 6.43)] (Orsillo, et al., 2007). Social support valence, as assessed by the SAQ total score, had a mean of -4.5 (*SD* = 13.13), while social support availability, as measured by the MSPSS total score, had a mean value of 54.8 (*SD* = 18.12). Present study mean score on the SAQ was notable lower than that for the sample of former political prisoners (mean = 3.2, *SD* = 14.85) presented by Maercker and Muller (2004). As previously noted, the present sample yielded a mean CESD-10 depression score of 13.2 (*SD* = 7.08), which is above the value (CESD score of 10) noted as clinically significance depression. The descriptive statistics, including the possible and sample ranges, for all six scales and applicable subscales are presented in Table 11.

Table 11

Sample Score Ranges, Means, Standard Deviations, and Norms

Scale	Items	*Possible Range*	*Sample Range*	*Sample Mean*	*Sample SD*
CESD-10[a]	10	0-30	0-28	13.2	7.08
PCL-C[b]	17	17-85	18-85	50.4	16.52
Re-experiencing	5	5-25	5-25	20.1	7.67
Avoid/Numbing	7	7-35	8-35	15.1	5.79
Hyper-arousal	5	5-25	5-25	15.3	4.94
MSPSS	12	12-84	14-84	54.8	18.12
EQ	40	0-80	13-72	45.0	13.25
SAQ	16	-40-+40	-27-+33	-4.5	13.13
ERNS[c]					
Positive[d]	26	1-130	64-125	102.6	15.81
General[d]	8	1-40	18-40	31.0	6.34

Notes:
CESD-10 = Center for Epidemiologic Studies Depression Scale; PCL_C = Posttraumatic Stress Disorder Check List- Civilian Version; MSPSS = Multidimensional Scale of Perceived Social Support; EQ = Empathy Quotient; SAQ = Social Acknowledgment Questionnaire; ERNS = Emotional Reactivity and Numbing Scale
[a] A score of 10 on the CESD-10 represents the clinical threshold for mild to moderate depression.
[b]A score of 40-50 on the PCL-C total scale represents the most stringent criterion for the designation of clinically significant PTSD.
[c] Values are not listed for the ERNS total score as the overall scale was not used in present analyses
[d] For the ERNS subscales, lower scores represent greater numbing.

Reliability Coefficients for Standardized Scales

The internal consistency reliability of each instrument used in the analyses was likewise calculated and corresponding Cronbach's alpha coefficients for each are presented in Table 12. All scales were found to have an internal consistency exceeding the minimal acceptable Cronbach's alpha coefficient of 0.7 (George & Mallery, 2003, p. 231). Furthermore, all but two scales were found to have good (alpha>0.80) or excellent

(alpha>0.90) internal consistency reliability. The reliabilities of the SAQ and the hyper-arousal subscale of the PCL-C, however still fell within acceptable range (alpha>0.70).

Table 12

Alpha Coefficients for Standardized Assessments Used in Analyses

Scale	No Items	*Published* Alphas	*Study* Alpha
CESD-10	10	0.92	0.87
PCL-C	17	0.94	0.93
Re-experiencing	5	0.85	0.90
Avoid/Numbing	7	0.85	0.87
Hyper-arousal	5	0.83	0.72
MSPSS	12	0.88-0.92	0.92
EQ	60	0.92	0.89
SAQ	16	0.79-0.86	0.76
ERNS			
Positive	26	0.91	0.90
General	8	0.81	0.80

Note: Values for the ERNS total score are not listed as the overall scale was not used in present analyses.

Results of Hypothesis Testing

The following section presents the results from the four research questions and corresponding six hypotheses presented for analysis in the present study. Pearson product-moment correlations, multiple regressions, multivariate multiple regressions, and Sobel tests of mediation are used to examine the proposed relationships between PTSD symptom severity, emotional numbing, empathic capacity and perceptions of social support valence and availability in female survivors of interpersonal trauma.

Research Question One

In an effort to confirm findings from earlier literature (Mazza, et al., 2012; Nietlisbach, et al., 2010), research question one explored the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal violence. Two-tailed Pearson correlations were used to test the presence and significance of the relationship between these two variables and a significant inverse correlation was hypothesized between PTSD symptom severity and empathic capacity. Both the overall PTSD symptom severity as well as each of the three indices of PTSD, namely Reexperiencing, Avoidance-Numbing, and Hyperarousal, were examined. As predicted two-tailed Pearson product-moment correlations revealed a significant negative correlation between empathic capacity and PTSD total symptom severity [$r(79) = -0.298$, $p < 0.01$], with a statistical power of 0.86. Correlations between EQ and each of the three PCL-C subscales were likewise in the expected direction and significant at the $p < 0.05$ level, with EQ showing the highest correlation with the Avoidance-Numbing subscale at $r(79) = -0.282$ ($p<0.05$).The exact Pearson correlations and significance values for each relationship can be found in Table 13.

Table 13

Pearson Correlation Matrix of PCLC Total and Subscale Scores and EQ Scores

	PCL-C Avoidance/Numbing	PCL-C Hyperarousal	PCL-C Reexperiencing	PCL-C Total
EQ	-.282*	-.268*	-.252*	-.298*

Note. Two-tailed, *df* = 79
* significant at the *p*<0.05

Research Question Two

The second research question inquired as to the relationship between PTSD symptom severity and perceptions of social support availability and valence. The two hypotheses addressing this question posited that there would be a significant negative relationship between PCL-C total and subscale scores and scores on (1) the SAQ and (2) the MSPSS. Such a relationship would insinuate that more severe PTSD symptoms were related to lower perceived social support availability and valence. Both hypotheses were confirmed. Two-tailed Pearson product-moment correlations showed a moderate significant inverse relationships between the PCL-C total scale scores and the MSPSS [$r(79) = -0.220$, $p < 0.05$], with a power of 0.63, and a strong significant inverse relationship between the PCL-C total scale and the SAQ [$r(79) = -0.421$. $p < 0.001$], with a power of 0.99. A significant inverse relationship was likewise found between the SAQ and all subscales of the PCL-C. Furthermore, the MSPSS showed a significant inverse relationship with all but one of the PCL-C subscales, namely the Reexperiencing subscale. Although the directionality was as hypothesized the correlation between thePCL-C Rexperiencing subscale and the MSPSS was not significant [$r(79)=-0.115, p>0.05$]. Interestingly, the SAQ, measuring perceived social support valence in survivors, revealed higher correlations with the overall PCL-C as well as each of the three subscales than did the MSPSS. In addition, both the MSPSS and the SAQ demonstrated higher correlations with the Avoidance-Numbing subscale of the PCL-C than with any other subscale. Furthermore, as would be expected, a significant moderate

positive relationship [r(79)=0.349,p<0.05] was found between the measure of perceived social support valence (SAQ) and the measure of perceived social support availability (MSPSS).

Table 14

Correlation Matrix of PCLC Total and Subscale Scores, MSPSS Total Scores and SAQ Total Scores

	PCL-C Avoidance/ Numbing	PCL-C Hyperarousal	PCL-C Reexperiencing	PCL-C Total	SAQ
MSPSS	-.239*	-.234*	-.115	-.220*	.349*
SAQ	-.426*	-.339*	-.349*	-.421*	1

Note.
PCL_C = Posttraumatic Stress Disorder Check List- Civilian Version; MSPSS = Multidimensional Scale of Perceived Social Support; SAQ = Social Acknowledgment Questionnaire
Two-tailed, *df* = 79
* significant at the $p<0.05$

Research Question Three

The third research question examined whether emotional numbing, as measured by the ERNS general and positive subscales, mediated the predictive relationship between a survivor's PTSD symptom severity, as measured by the PCL-C total scale and her empathic capacity as measured by the EQ. It was hypothesized that positive emotional numbing and general emotional numbing would each mediate the relationship between total PCL-C scores and scores on the EQ. To test this hypothesis, Baron and Kenny's (1986) four-step process to establishing mediation was followed by a Sobel test to examine the significance of any potential observed mediation. The four-step mediation

model was conducted for each mediator (positive numbing and general numbing) separately given that a Sobel test of mediation is not feasible with multiple mediators. The causal steps criteria stipulated by the Baron and Kenny method are as follows: 1) the total effect from the independent variable (i.e., PTSD symptom severity, PCL-C) to the dependent variable (i.e., empathic capacity, EQ) must be significant; 2) The direct path from the independent variable to the mediator (i.e., positive numbing, ERNS-Positive; general numbing, ERNS-General) must be significant; 3) The mediator must significantly predict the dependent variable when entered into the full regression equation with the independent variable; and 4) The independent variable is found to no longer predict the dependent variable in this final full regression analysis. The Sobel test then uses the regression coefficient and corresponding standard error of the independent variable when predicting the dependent variable alone and the regression coefficient and corresponding standard error of the mediator variable in the full analysis to test if the indirect effect is significantly different from zero (z-test).

Hypothesis 3a. In the first mediation analysis, positive emotional numbing was examined as a potential mediator of the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal violence. Each of the Baron and Kenny steps and corresponding regression values are detailed in Table 15. Step one confirmed that PTSD symptom severity did significantly predict empathic capacity $F(1,79)=7.725$, $p<0.01$, adjusted $R^2=0.08$. Although the test static is significant, the adjusted R^2 suggests that PTSD symptom severity only accounts for 8% of the variance in empathic capacity. Furthermore, the negative value of the regression coefficient

suggests that there is an inverse relationship between these two variables, whereby higher symptom severity (i.e., higher PCL-C scores) predict lower levels of empathic capacity (i.e., higher EQ scores).Step two of the Baron and Kenny causal criteria was likewise confirmed, indicating that PTSD symptom severity significantly predicts positive emotional numbing $F(1,79)=13.788$, $p<0.01$, adjusted $R^2=0.14$. Thus, symptom severity accounts for 14% of the variance in emotional numbing. Completion of steps three and four of the Baron and Kenny model, assessing the influence of both the symptom severity and positive emotional numbing in predicting empathic capacity, provided preliminary confirmation of the meditational role of positive numbing. The full model was found to be significant, $F(2,78)=15.676$, $p<0.01$ adjusted $R^2= 0.29$, suggesting that symptom severity and positive numbing together significantly predict empathic capacity, accounting for nearly a third of the variance in this construct. When looking at the contribution of each variable individually, however, it becomes apparent from an examination of the significance of the regression coefficients, however, that the positive numbing appears to be having a significant effect on empathic capacity $[t(78)=4.63,p<0.01]$ but that PTSD symptom severity no longer significantly impacts empathic capacity $[t(78)=-1.09,p>0.05]$. The positive nature of the regression coefficient between positive emotional numbing and empathic capacity suggests that higher scores on the ERNS-Positive (i.e., less emotional numbing) predict higher levels of empathic capacity (i.e., higher EQ scores). The Sobel z-test of mediation confirmed that in fact positive emotional numbing significantly mediated the relationship between PTSD symptom severity and empathic capacity ($z=-2.88,p<0.01$).

Table 15

Regression Analyses Assessing Positive Emotional Numbing as a Mediator between PTSD Symptom Severity and Empathic Capacity

Dependent	Predictors	B	*SE B*	*ß*	*t*	*Adj R^2*
EQ						
	PCL-C[a]	-0.24	0.09	-0.30	-2.78*	0.08
ERNS-Positive						
	PCL-C[b]	-0.37	0.10	-0.39	-3.71*	0.14
EQ[c]						
	PCL-C	-0.09	0.08	-0.11	-1.09	0.27
	ERNS-Positive	0.40	0.09	0.48	4.63*	

Note.
PCL_C = Posttraumatic Stress Disorder Check List- Civilian Version; EQ = Empathy Quotient; SAQ = Social Acknowledgment Questionnaire; ERN_Positive = Positive numbing subscale of the Emotional Reactivity and Numbing Scale
Sobel test statistic for ERNS-Positive: z=-2.88, p<0.01
[a] Cohen's f^2 = 0. 10, power 0.80
[b] Cohen's f^2 = 0. 18, power 0.96
[c] Cohen's f^2 = 0. 41, power 0.99
*Significant at p<0.05

Hypothesis 3b. The second mediation model assessed the effect of general numbing in mediating the relationship between PTSD symptom severity and empathic capacity in female survivors of interpersonal violence. Again, Baron and Kenny's (1986) four-step mediation analysis was conducted followed by a Sobel z-test to assess the significance of the mediation. The regression statistics for each step, as well as the Sobel results, are detailed in Table 16.

Table 16

Regression Analyses Assessing General Emotional Numbing as a Mediator between PTSD Symptom Severity and Empathic Capacity

Dependent	Criterion	B	*SE B*	*ß*	*t*	R^2
EQ						
	PCL-C	-0.24	0.086	-0.30	-2.78*	0.08
ERNS-General						
	PCL-C[a]	-0.18	0.04	-0.47	-4.67*	0.21
EQ[b]						
	PCL-C	-0.11	0.09	-0.13	-1.14	0.17
	ERNS-General	0.76	0.24	0.36	3.09*	

Note:
PCL_C = Posttraumatic Stress Disorder Check List- Civilian Version; EQ = Empathy Quotient; SAQ = Social Acknowledgment Questionnaire; ERN_Positive = Positive numbing subscale of the Emotional Reactivity and Numbing Scale
Sobel test for general numbing: z=-2.577,p<0.01
[a]Cohen's f^2 = 0. 28, power 0.99
[b] Cohen's f^2 = 0. 23, power 0.97
*Significant at p<0.05

Again, PTSD symptom severity significantly predicted empathic capacity [$F(1,79)=7.725$, $p<0.01$, adjusted $R^2=0.08$]. General emotional numbing was also shown to be significantly predicted by PTSD symptom severity [$F(1,79)=21.926$, $p<0.01$, adjusted $R^2=0.21$], with symptom severity accounting for 21% of the variance general emotional numbing. The third and fourth steps of the causal mediation model are furthermore confirmed. A full regression analysis using both general numbing and PTSD symptom severity to predict empathic capacity likewise resulted in a significant model [$F(2,78)=9.128$, $p<0.01$, adjusted $R^2=0.17$]. When the regression coefficients for each

variable are examined, although general emotional numbing significantly contributes to empathic capacity [$t(78)=3.09, p<0.01$), symptom severity no longer significantly contributes to predicting empathic capacity [$t(78)=-1.14, p>0.05$]. The positive nature of the regression coefficient between general numbing and empathy suggests that higher scores on the ERNS-General (i.e., less emotional numbing) predict higher levels of empathic capacity (i.e., higher EQ scores). The Sobel z-test of mediation verified the significance of this mediation effect ($z=-2.577, p<0.01$). Therefore, this hypothesis, as with positive emotional numbing, was likewise confirmed, indicating that general emotional numbing also significantly mediates the relationship between PTSD symptom severity and empathic capacity.

Research Question Four

The final research question inquired as to the mediating role of empathic capacity in the relationship between emotional numbing and perceptions of social support availability and valence. It was hypothesized that empathic capacity as measured by the EQ would mediate the relationship between emotional numbing as assessed by the general and positive subscales of the ERNS and perceptions of social support availability and valence as measured by the MSPSS and SAQ respectively. Following Baron and Kenny's (1986) causal steps model of mediation, a series of univariate and multivariate regressions were conducted to test this hypothesis.

An initial multivariate regression using both positive and general emotional numbing to predict perceived social support valence (SAQ) and availability (MSPSS) determined that the full model was not significant [Wilks' Lambda=0.99, $F(2,77)=0.33$,

p>0.05]. However, upon examination of the separate contributions of general and positive numbing in this regression, positive numbing [Wilks' Lambda=0.90, F(2,77)=4.34, p<0.05] but not general numbing [Wilks' Lambda=0.99, F(2,77)=0.23, p>0.05] significantly contributed to the prediction of SAQ and MSPSS. As such, general numbing was removed from further analyses and was not used in assessing the mediating role of empathy the relationship between emotional numbing and perceived social support. Positive numbing alone was then used to predict perceived social support availability and valence and was found to be significant [Wilks' Lambda=0.85, F(2,78)=7.29, p<0.01], thereby satisfying the initial step of Baron and Kenny's (1986) mediations analysis. The detailed results of all multivariate analyses, including effect size and power, are presented in Table 17. To assess the second step of the causal model of mediation, positive numbing was used to predict empathic capacity using a univariate linear regression. As seen in Table 18, positive numbing significantly predicted empathy, explaining 27% of the variance [$F(1,79)=30.096$, $p<0.01$, adjusted $R^2=0.27$]. The third step of the Baron and Kenny model, examining if the mediator (i.e., EQ) affects the outcome variables, however, was found to be not significant (see Table 17) in the full model regressing perceptions of social support availability and valence on positive numbing and empathic capacity [Wilks' Lambda=0.96, F(2,77)=1.70, p>0.05]. This result suggests that empathy does not mediate the relationship between positive emotional numbing and perceptions of social support availability and numbing. As a result the final hypothesis of the study was proved to be not significant.

Table 17

Multivariate Regressions Assessing the Relationships between Emotional Numbing and Perceptions of Social Support Availability and Valence

Dependent *Squared*	Predictors	Wilks' *Lambda*	*F*	*Partial Eta*
SAQ[a]				
MSPSS				
	Omnibus	0.99	0.33	0.01
	ERNS-Positive	0.90	4.34*	0.10[d]
	ERNS-General	0.99	0.23	0.01
SAQ[b]				
MSPSS				
	ERNS-Positive	0.85	7.29*	0.16[e]
SAQ[c]				
MSPSS				
	Omnibus	0.82	8.30*	0.18[f]
	ERNS-Positive	0.94	2.50	0.06[g]
	EQ	0.96	1.70	0.04[h]

a df (2,77)
b df (2,78)
c df (2,77)
d Power= 0.73, computed using and alpha of 0.05
e Power= 0.91, computed using and alpha of 0.05
f Power= 0.96, computed using and alpha of 0.05
g Power= 0.49, computed using and alpha of 0.05
h Power= 0.35, computed using and alpha of 0.05
*significant at $p<0.05$

Table 18

Regression Analysis Assessing Positive Numbing as a Predictor of Empathic Capacity

Dependent	Criterion	B	*SE B*	*ß*	*t*	*Adj* R^2
EQ						
	ERNS-Positive	0.44	0.08	0.53	5.47*	0.27

[a]Cohen's f^2 = 0. 37, power 0.99
*Significant at $p<0.05$

Influence of Depression on Analyses

In Chapter Two, the frequent co-morbidity of PTSD and depression in survivors of interpersonal trauma was discussed and the potential implications of this relationship on the proposed study were explored. As such, in a final assessment of the study results, the potential confounding role of depression in the relationship among the study variables was examined. Table 19 presents the Pearson product-moment correlations between the study scales and the CESD as well as the partial correlations between the study scales when controlling for CESD. As denoted in the table, CESD was significantly correlated to every study scale at the $p<0.01$ level. Furthermore, prior to controlling for depression, all but one bivariate correlation was significant, with the one insignificant relations existing between general numbing and perceived social support availability [$r(79)=0.17, p>0.05$].

However, when the common effects of depression are parceled out of the relationships among the study variables, only four bivariate correlations remain significant. A significant direct relationship remained between empathy and both the

positive numbing [$r(78)=0.42, p<0.01$] and general numbing [$r(78)=0.30, p<0.01$] subscales, as well as between the two positive and general numbing subscales [$r(78)=0.67, p<0.01$] and between the scales measuring perceived social support valence and availability [$r(78)=0.23, p<0.01$]. Given the non-significant partial correlations between PTSD symptom severity and all other study variables, if the initial five study hypotheses tests were to have controlled for depression, none would have shown significance. Furthermore, although there is a significant relationship between positive emotional numbing and empathic capacity, the lack of a significant relationship between positive emotional numbing and both perceived social support availability [$r(78)= 0.17$, $p>0.05$] and valence [$r(79)= 0.15$, $p>0.05$] would have likewise led to the sixth study hypothesis not being significant had depression been first entered into the regression equations. Such results have implications not only on the overall understanding of the relationship between depression and PTSD but also the relationship between PTSD, empathy, emotional numbing and perceptions of social support, as will be discussed in the subsequent chapter.

Table 19

Intercorrelations between Study Scales and CESD and Partial Correlations when Controlling for CESD

	EQ	ERNS-Positive[a]	ERNS-General[a]	MSPSS	PCL-C	SAQ
CESD	-.398*	-.460*	-.430*	-.330*	.687*	-.464*
EQ	1	.525*	.420*	.294*	-.298*	.302*
ERNS-Post	.420**	1	.733*	.297*	-.385*	.334*
ERNS-General	.300**	.668**	1	.170	-.466*	.220*
MSPSS	.188	.173	.033	1	-.220*	.349*
PCL-C	-.038	-.107	-.260	.009	1	-.421*
SAQ	.145	.154	.026	.234**	-.159	1

Notes: Bivariate correlations are presented on the diagonal and partial correlations when controlling for CESD are presented on the off-diagonal.

[a] Lower scores on the ERNS denote greater numbing

* significant at $p<0.05$; Two-tailed, df=79

** significant at $p<0.05$; Two-tailed, df=78

Summary of the Results

The present study addressed four research questions and tested six related research hypotheses. The study sample was largely African American or Caucasian, heterosexual, separated or divorced, had attended some college and earned less than $10,000 annually. A preponderance of the sample reached clinically significant thresholds for both posstraumatic stress disorder and depression. Furthermore, nearly all had been involved in psychotherapy and nearly half believed her therapist to be a significant source of support. A considerable majority of the sample had experienced multiple acts of interpersonal violence across her life, largely perpetrated by a present or

former partner (adult IV) or a family member (child IV), and nearly all had experienced at least two traumatic episodes during her life (e.g., interpersonal and non-interpersonal violence combined).

The study hypothesis proposed an inverse relationship between PTSD symptom severity and empathic capacity, whereby an increase in symptom severity would be associated with a decrease in empathy. The Pearson product-moment correlation used to assess this hypothesis was found to be significant, thus confirming study hypothesis one. Similarly, the second and third study hypotheses, speculating an inverse relationship between PTSD symptom severity and perceived social support availability (Hypothesis Two) and valence (Hypothesis Three), was likewise confirmed using Pearson product-moment correlations. As such, as PTSD symptom severity increases, perceptions of social support availability and valence both decrease.

Research hypothesis four theorized that positive emotional numbing (i.e., limitation in the capacity to experience and/or express positive emotions) would significantly mediate the relationship between PTSD symptom severity and empathic capacity. Supporting this hypothesis, a series of simple and multiple linear regressions confirmed each step of the Baron and Kenny (1986) causal criteria model and a Sobel test of mediation established positive emotional numbing as a significant mediator of the relationship between symptom severity and empathic capacity. This suggests that although PTSD symptom severity does predict a survivor's level of empathy, this relationship is explained by the amount of positive emotional numbing experienced by the survivor. The fifth research hypothesis speculated that like positive emotional

numbing, general emotional numbing (i.e., overall restricted range of affect) would likewise mediate the relationship between PTSD symptom severity and empathic capacity. As with research hypothesis four, a Sobel test of mediation confirmed that general emotional numbing was a significant mediator of the relationship between PTSD symptom severity and empathic capacity.

The final research hypothesis proposed that empathic capacity would mediate the relationship between emotional numbing and perceptions of social support availability and valence. An initial multivariate multiple regression indicated that positive but not general emotional numbing significantly predicted a survivor's perceptions of social support availability and valence. In addition, a univariate linear regression established positive emotional numbing as a significant predictor of empathy, confirming the second step in Baron and Kenny's causal mediation model. A final multivariate multiple regression, using positive emotional numbing and empathic capacity to predict perceived social support availability and valence, suggested that empathy did not significantly contribute to the prediction of the two depended variables. As such, the final research hypothesis was not supported by the present data.

The chapter concluded with an examination of the confounding effects of depression in the primary statistical analyses used to address the research hypotheses. An examination of partial Pearson product-moment correlations indicated that when controlling for depression nearly all of the relationships between study variables became

non-significant. Such a finding indicates that the statistical tests of the study hypotheses controlled for the survivor's level of depression, none of the research hypotheses would have been significant.

Each of these findings warrants thorough consideration in the context of the literature reviewed in Chapter Two. The final chapter of this dissertation will explore the meaning and implications of each finding as well as discuss the limitations of the study and how such may have impacted these results. The overall implications of the study results on both the practice of counseling and the direction of future research in this field will furthermore be proposed.

CHAPTER V

DISCUSSION AND IMPLICATIONS

The present study sought to assess relationships between PTSD symptom severity, empathic capacity, emotional numbing and perceptions of social support availability and valence in female survivors of interpersonal violence, specifically testing the mediating roles of empathic capacity and emotional numbing in those relationships. Chapter IV presented detailed findings regarding the participants, instruments and hypotheses involved in the present study. The present chapter will provide a discussion of the study participants, assessments and statistical analyses as well as a discussion of the limitations of the study. The chapter will conclude by providing insights into how these findings contribute to the growing body of knowledge relating to trauma theory, counseling practice and counselor education in addition to potential future research directions that could further inform this line of research.

Study Participants

Eighty-one female survivors of adult interpersonal violence participated in the present study. This sample was fairly heterogeneous across many demographic parameters with the exception of household income and sexual-affectional orientation. Although largely comprised African American and Caucasian participants, the

distribution among the various ethnicities largely reflected the demographics of the larger population across the southeastern state in which the study was conducted. Such general diversity among the sample in terms of ethnicity, age, relationship status and education, variables which influence the development, severity and course of PTSD (Keane, et al., 2006; Magruder et al., 2004), may have strengthened the generalizability of the results.

With regard to experiences of both interpersonal and other trauma exposure, the sample was found generally to have experienced numerous incidences of trauma across their lives, yet the combinations of trauma experienced were quite diverse. Not only was notable interpersonal revictimization present, but nearly all survivors had endured non-interpersonal traumatic event as well, most notably traumatic grief and horrific events not otherwise specified. In this way, the present sample validated previous findings suggesting that rarely does one type of interpersonal violence occur in isolation from others and revictimization of trauma across the lifespan is common among survivors of childhood maltreatment (Classen, et al., 2005). This complex co-occurrence of various types of interpersonal trauma exposure presented considerable difficulty in teasing apart survivors of single incident sexual assault from survivors of partner violence, and thus the present sample does not allow for comparative analyses or an assessment of trends between the two populations. According to the literature (Classen, et al., 2005; Lilly & Valdez, 2012), however, such gross revictimization may have served to exacerbate PTSD symptom severity among the present sample, which may in turn explain the present finding that well over half the sample reached clinically significant levels of PTSD. However, given that such revictimization is unfortunately quite pervasive among

survivors of both sexual assault and partner violence, the expressed level of PTSD among the present sample may likewise be representative of the larger population of survivors.

Furthermore, of the women sampled, a full 90% either had attended or were presently attending counseling or psychotherapy and half of the women were currently taking psychotropic medications. Such proposed aids to both psychological wellbeing and neurological functioning may insinuate that these women have experienced improvements in PTSD symptomatology, with regard to both neurological functioning and behavioral expression, as a result such psychotherapeutic support. Notwithstanding such interventions, however, the extent of the PTSD symptom severity experienced among the sample suggests that these survivors continued to profoundly struggle with indicators of posttraumatic stress. Without knowing the precise dosage or adherence to taking the medications prescribed or the exact form and content of the most recent psychotherapy it is difficult to project the actual influence that such interventions may have had on the survivors' wellbeing relating to her experiences of interpersonal trauma. Taken together, however, this may in part substantiate previous findings that survivors of interpersonal trauma in particular may not effectively respond to the presently available treatments for PTSD (Leiner et al., 2012) and that the current interventions for PTSD may fail to address the full range of symptoms experienced by survivors (McFarlane & Yahuda, 2000).

Also of note was the prolific co-occurrence between depression and PTSD in the present sample, whereby nearly 70% of the sample reached clinically significant levels of depression. As with the severity of posttraumatic stress, it is likely that the degree of

revictimization experienced by survivors served to exacerbate depressive symptomatology. Of the sample taking psychotropic medications, half were taking some form of antidepressant. Those individuals, however, demonstrated significantly higher levels of depression than those survivors who were not taking medication for depression, suggesting that either the medication was an ineffective means of assuaging symptomatology or that symptom severity would have been more pronounced if the participants were not taking medication. However, the present findings are consistent with previous literature that suggests not only that upwards of 65 percent of trauma survivors likewise experience depression but that interpersonal trauma in particular leads to greater incidence of both depression and PTSD (T. A. Brown, et al., 2001; Ford, Elhai, Connor, & Frueh, 2010). Thus, this finding further compelled an examination of the influence of depression when assessing the relationship between PTSD symptom severity, empathy, emotional numbing and perceptions of social support.

Potentially contributing to the levels of psychological distress experienced by survivors is the current socioeconomic status of the majority of participants. The household income for over fifty percent of the present sample was under $10,000 annually, well below the federal poverty guidelines for a household of any size. One possible explanation for such findings rests in the fact that six of the known participating agencies comprised domestic violence shelters, while an additional site included a residential treatment center. As such, a number of the respondents could be receiving additional support to ensure that basic needs are being met. This, however, in know way

precludes that living with such financial hardship and concerns over finding employment can induce considerable psychological distress on an individual.

Of further importance in the consideration of the present sample was the frequent omission of the age at which the interpersonal traumas occurred, with over 25% of the questions inquiring about the age at which the most recent trauma occurred (by interpersonal trauma type) not being answered by the present sample. As such, calculating and controlling for the time since the most recent trauma occurred, a factor which has proven significant in consideration of posttrauma responses, proved markedly challenging with the present sample and suggests that alternative formats for assessing this information may be warranted in future studies.

Study Instruments

Six assessments overall were used in the study analyses to examine the relationships between PTSD symptom severity, positive and general emotional numbing, empathic capacity, perceptions of social support valence and availability, and severity of depressive symptomatology. Overall, most scales were determined to be univariate and multivariate normal for the present analyses. There were however several instances of minor deviation from assumptions of normality. Two of the subscales measuring facets of posttraumatic stress, namely re-experiencing and avoidance-numbing, were slightly platykurtic suggesting that there were relatively large variations within observations and less scores were concentrated around the mean value. However, given the minimal nature of the deviations both scales were retained in their original format. In addition, one outlier was found on the measure of perceived social support valence, with the value

being above the mean suggesting a notably higher degree of positive social acknowledgement relative to the sample average. This participant's rating, however, was within three standard deviations from the mean and again retained in analyses.

All scales were likewise found to have moderate to high internal consistency reliability, with values similar to those found in previous studies utilizing the same instruments. As such the instruments appear reliable in measuring the experiences of the present sample across each study variable. Each scale was also shown to have a wide range, with scores nearing the maximum and minimum values for each scale. Such may be indicative of the marked variability in the experiences of survivors and may also more generally suggest the benefit of having a large sample size in denoting significant overall trends among the data. It must also be noted that the present sample expressed notably less positive and general emotional numbing than has been recorded previously in survivors as well as in a match sample of individuals without a history of trauma (Orsillo, et al., 2007). Furthermore, the ratings of social acknowledgement in the present sample were markedly lower than values found previously in survivors of war (Maercker & Muller, 2004). Although the present mean scores on the ERNS and EQ were within one standard deviation of the PTSD samples present in Orsillo, et al. (2007) and Maercker and Muller (2004), and as such may be accurate representations of the emotional numbing experienced in the present sample, these values could also potentially indicate socially desirable responding on behalf of the participants.

The zero-order bivariate correlations of the assessments used in the study indicate that although there are notably high correlations between some of the study constructs,

they do not appear to violate assumptions of multicolinearity. However, several interesting relationships appear among of these constructs that were not captured in the primary analyses testing the study hypotheses. Of particular note is the strong correlation between empathy and measures of both perceived social support valence [($r(79)=0.31$, $p<0.01$] and availability [($r(79)=0.29$, $p<0.01$]. Accordingly, although empathy was not found to mediate the relationship between emotional numbing and perceptions of social support, there does seem to be some form of association between these constructs. Furthermore, given the high correlation between the scales for positive and general numbing, although quite intuitive in that both are indices of emotional numbing, the high degree of shared variance between these two, although not in violation of assumptions of multicollinearity per say, may have impacted the statistical outcomes associated with the analyses using both constructs in tandem, namely the multivariate regression assessing the predictive capacity of positive and emotional numbing on perceptions of social support valence and availability. The lack of significance in this multivariate test could conversely be contributed to the lack of significance found between the measures of general numbing and perceived social support availability [($r(79)=0.17$, $p>0.05$]. Follow-up analyses would be beneficial in further clarifying the relationships among empathy, emotional numbing perceptions of social support and posttrauma symptom severity, especially given the interesting role of depression in these relationships, a discussion of which is presented later in this chapter.

Study Hypotheses

In an effort to further the literature and examine the relationships between PTSD symptom severity, emotional numbing, empathy and perceptions of social support availability and valence, four research question and five associated hypotheses were assessed in this causal comparative study. The statistical tests confirmed all but one of the proposed study hypotheses.

Research Question One

The first research question sought to elucidate the relationship between PTSD symptom severity and empathic capacity. The two previous studies that have examined empathy in individuals with PTSD found that when compared to non-traumatized individuals, individuals with PTSD demonstrated significantly lower levels of empathy (Mazza, et al., 2012; Nietlisbach, et al., 2010). As such, the present study hypothesized that PTSD symptom severity would be significantly and inversely correlated with levels of empathy in survivors. A two-tailed Pearson correlation confirmed this hypothesis, thereby extending the previous research findings detailing the relationship between PTSD and empathy. Whereas the two previous studies assessing this relationship compared individuals with and without PTSD, the present study determined a significant relationship between the *severity* of the symptoms being expressed and a survivor's experiences of empathy. Thus, research now not only establishes that individuals with PTSD may have difficulty experiencing empathy when compared to individuals with a history of trauma, but also that a survivor's ability to feel and receive empathy is related to the gravity of her posttraumatic symptomatology.

In further addressing this research question the relationship between empathy and each of the three PTSD subscales, namely hyperarousal, re-experiencing, and avoidance-numbing, were assessed. Of these three symptom clusters of PTSD, empathy was found to have the strongest correlation with the Avoidance-Numbing subscale. In light of the literature establishing a strong neurological co-localization (Giuliani, et al., 2011; Gu, et al., 2012; Silani, et al., 2008; Singer, 2006; Singer & Lamm, 2009) and theoretical connection (Decety & Jackson, 2006) between these two constructs, this finding corroborates established research in this area and adds further weight to the relationship between emotional numbing and empathy hypothesized in the present study.

Research Question Two

The second research question was proposed in an effort to determine a possible relationship between PTSD symptoms severity and perceptions of social support availability and valence. Two hypotheses were proposed, namely that PTSD symptom severity would be significantly and inversely correlated with perceptions of social support availability and valence, respectively. The findings substantiated a considerable body of previous research that demonstrates the higher a survivor's symptom severity, the lower her perceptions of social support, including perceptions of both the valence and availability of that support (Brewin, et al., 2000; Ozer, et al., 2003). Although these significant relationships do not denote causality or the directionality of a potential causal relationship, they do establish a significant relationship specifically between the measure of PTSD symptom severity and the two indices of perceived support used in the present

study and suggest that within the present sample the severity of a survivor's trauma response does relate to her ability to perceive the positive social support around her.

In addition, both perceived social support availability and valence demonstrated stronger relationships with the avoidance and numbing features of posttraumatic stress than any other symptomatological cluster. Previous results have similarly shown that numbing has a stronger relationship with and better predicts perceived social support as measured by among others the Multidimensional Scale of Perceived Social Support (Zimet, et al., 1988) than do hyperarousal, avoidance, or re-experiencing (Beck, Grant, Clapp, & Palyo, 2009; Kuhn, Blanchard, & Hickling, 2003; Schützwohl & Maercker, 2000). This finding however again espouses present hypotheses that numbing in particular plays an integral role in a survivor's difficulty to accurately perceive potential positive emotional and practical support from others.

Interestingly, however, perceived social support valence showed notably higher correlations with the overall PTSD symptom severity and each symptom clusters than did perceived social support availability. To the author's knowledge no other study has jointly examined perceived social support availability and perceived social support valence when using the Social Acknowledgment Questionnaire (Andreas Maercker & Müller, 2004), and as such there exists no base of comparison for this finding in the previous literature. However, some authors have speculated that a survivor's perceived valence of a broader context of support may be more predictive of PTSD severity than her perceived availability of emotional or instrumental support (Forstmeier, Kuwert, Spitzer, Freyberger, & Maercker, 2009; A. Maercker, Povilonyte, Lianova, & Pöhlmann,

2009). Furthermore, these finding may potentially be explained by the nature of the two social support scales used in the present study. The Multidimensional Scale of Perceived Social Support (Zimet, et al., 1988), although frequently used to measure perceptions of support in traumatized populations, was not developed or normed on trauma samples. The Social Acknowledgment Questionnaire, however, was developed expressly to measure reactions and perceptions of support in trauma survivors. This finding may warrant consideration in future research and call for an examination of each factor separately when investigating the effects of PTSD symptomatology on perceptions of support.

Research Question Three

The third research question was established to explore the mediating role of emotional numbing in the relationship between empathy and PTSD symptom severity found in the opening research question of the study. Initially, taking this original finding one step further, it was found that not only is there a relationship between a survivor's posttrauma severity and her ability to perceive and express empathy, but that from assessing the gravity of her trauma response one can project the level of empathy she may be experiencing. This finding is notable in that the two previous studies exploring empathy in survivors of trauma studied a heterogeneous group of survivors (Nietlisbach, et al., 2010) and survivors of natural disasters (Mazza, et al., 2012). Thus the present study was the first to replicate this result in female survivors of interpersonal trauma. PTSD severity in and of itself, however, only explained approximately eight percept of the variance in empathy, suggesting that there are likely other factors influencing a

survivor's empathic capacity. The second step in assessing the role of numbing in mediating this relationship examined how well the severity of posttrauma responses predicted emotional numbing. The literature surrounding emotional numbing in trauma survivors indicates that survivors often experience difficulty not only with general numbing of emotions but more expressly with the numbing of positive emotions (i.e., limitations in one's capacity to experience and/or express positive emotions) (Amdur, Larsen & Liberzon, 2000; Frewen, et al., 2010; Kashdan, Elhai, & Frueh, 2006; Orsillo, et al., 2007). As such, the present research question sought to examine the relationship between symptom severity and both positive and general numbing.

Regression analyses examining these relationships indicated that the degree of a survivor's posttrauma response predicted her difficulty with both general and positive numbing. Although previous literature (Orsillo et al., 2007) determined that trauma survivors struggle with positive numbing more than general, the present findings suggest that symptom severity predicts more variation in general numbing (adjusted R^2 of 0.21 and 0.14, respectively). Furthermore, not only did PTSD severity predict both positive and general numbing, each form of numbing fully mediated the relationship between PTSD symptom severity and a survivor's empathic capacity. As such, the degree to which a survivor can experience or chooses to volitionally express a full range of emotions appears to be the factor that actually determines her ability to perceive and receive empathy, suggesting that as numbing becomes more profound her ability to experience empathy becomes more compromised. These findings again provide the first such empirical indication that the degree of numbing that a survivor experiences as a

result of trauma, which is influenced by the severity of her posttrauma response, can project her ability to experience and express empathy. Furthermore, when trauma severity and numbing are both used to predict empathy, symptom severity and *positive* numbing account for over a quarter of the variance in a survivor's experience of empathy, but general numbing and PTSD only account for 17% of this variance. Although the actual significance of these differences were not assessed, it raises an interesting question given that PTSD appears to be a stronger predictor of general numbing but that positive numbing and PTSD serve as stronger predictors of empathy. Such findings may help to elucidate some of the discrepancy found in the current literature related to emotional numbing in PTSD. Considerable debate surrounds whether positive numbing (i.e., limitation in the capacity to experience and/or express positive emotions) as compared to general numbing (i.e., restricted range of affect) more accurately characterizes the experiences of trauma survivors. The present findings suggest that potentially positive and general numbing may differentially affect various aspects of a survivor's wellbeing and experiences. Although previous studies have suggested that emotional numbing may be situationally specific, varying based upon the eliciting factors (Litz & Gray, 2002; Litz, et al., 2000; Tull & Roemer, 2003; Yoshihama & Horrocks, 2005) these studies did not consider that general versus positive numbing may likewise be differentially affected by context. Thus, the discrepant findings in previous studies may be due to the fact that they were comparing disparate outcomes and that neither is more or less important but that each form of numbing affects the life of the survivor in a different manner. Additional research is needed, however, to assess the validity of this theory as well as

specifically the comparative significance of positive versus general emotional numbing on empathy in survivors of interpersonal trauma.

It important to acknowledge, however, that the measure of emotional numbing used in the present study does not distinguish the origin of the emotional numbing. The complicated operationalization of emotional numbing suggests that what is experienced as emotional numbing in trauma survivors likely has an analgesic component (i.e., numbing of physiological sensations) resulting from a taxed autonomic arousal system as well as an active suppression and functional dysregulation of emotional *expression* (e.g., impairments in functioning of linguistic production areas of the brain in survivors, which may also be a consequence of dysregulated autonomic arousal) (Litz & Gray, 2002; Orsillo, et al., 2007; van der Kolk, et al., 1989; A. W. Wagner, et al., 2003). As such, it is difficult to distinguish if in responding to the assessment in this measure survivors were actively suppressing emotions or potential neurphysiological aberrations were leading to a disruption in her ability to somatically experience or verbalize such emotions. However, researchers have noted that these mechanisms of numbing may have differential outcomes. Butler (2003), for example, noted that a volitional suppression of emotions reduces rapport and inhibits relationship formation among dyads, and can actually lead to an increase in blood pressure of the non-suppressing partner during communication. Perhaps a human's innate ability to resonate and connect with others (i.e., interpersonal neurobiology) has the capacity to also recognize such suppression and interpret as inauthentic, thus impairing social bonding. Notwithstanding such consideration, neurophysiolgoical indices will be needed to distinguish such experiences of numbing

and may help elucidate the discrepancies noted both in this and former studies concerning the effects of positive versus general numbing.

Research Question Four

With the first half of the proposed study model validated, the fourth and final research question sought to elucidate the mediating role of empathic capacity in the relationship between emotional numbing and perceptions of social support availability and valence. Previous research has substantiated the particularly deleterious consequences of emotional numbing on experiences of social support and the interpersonal functioning of survivors, noting specifically that greater emotional numbing is predictive of decreased perceptions of social support and social embeddedness in male and female survivors (J. M. Cook, et al., 2004; Riggs, et al., 1998; Yoshihama & Horrocks, 2005). The present study supported these findings insomuch as positive emotional numbing, but not general numbing, significantly predicted perceptions of social support availability and valence. Such results suggest that a survivor's inability to experience or the suppression of positive emotions appears to significantly impair her ability to perceive positive social support, inclusive of both availability and valence. Again, however, these findings highlight the disparate roles of positive versus general numbing in the experiences of survivors.

The subsequent stage in addressing this hypothesis directly examined the degree to which empathy mediates this relationship between positive emotional numbing and social support. Contrary to the hypothesis, however, experiences of empathy did not effectively mediate this relationship. This suggests that although positive numbing

predicts both empathy and perceptions of social support and that empathy demonstrates a significant relationship with perceptions of social support valence and availability, empathy does not significantly account for the relationship between positive numbing on experiences of support. Although empathy is known to be critical to social functioning (Baron-Cohen & Wheelwright, 2004) and may very well independently predict perceptions of support in trauma survivors, emotional numbing appears to be a stronger predictor of such perceptions when examined in tandem. Clinical intervention studies have determined that improvements in emotional numbing distinctly predict improvements in interpersonal relationships in longitudinal studies of trauma survivors (Lunney & Schnurr, 2007; Schnurr, et al., 2006). Perhaps this is not by way of empathy, but potentially improvements in social numbing concordantly improve both empathy and perceptions of support, or conversely, increased numbing would lead to concurrent difficulties in both empathy and perceptions of social support valence and availability.

Further supporting this notion is Porges' (2011) polyvagal theory. Following trauma, a survivor often experiences a dysregulated autonomic nervous system, transitioning from *hyperaroused* states of hypervigilance and emotional labiality to *hypoaroused* state of affective numbing. Thus, when a survivor experiences emotional numbing she is not functioning from what Porges (2011) termed the Social Engagement System, an optimal zone of autonomic arousal, which supports the ability to effectively engage in social interactions. As such, it is possible that one's ability to express and receive empathy as well as the ability to accurately perceive social support *both* require that that individual have a regulated autonomic nervous system and be able to access her

social engagement system. Thus this prerequisite to both empathy and effective social function, namely a regulated autonomic nervous system, then conceivably this should serve as the starting point for therapeutic interventions.

Implications of Depression

Perhaps the most provocative finding of the present study was made manifest when assessing the influence of depression in the relationships between PTSD severity, emotional numbing, empathy and perceptions of social support. Substantial research has not only established the co-morbidity of depression and PTSD (Brown, et al., 2001) but has also suggested that the two disorders share numerous key diagnostic features and corollary experiences, most notably emotional numbing (Beck, et al., 2009; Neria, Besser, Kiper, & Westphal, 2010; O'Donnell, et al., 2004). Despite this noted co-occurrence and common symptomatology, neither of the previous studies examining empathy in survivors of PTSD have controlled for the influence of depression within this relationship (Mazza, et al., 2012; Nietlisbach, et al., 2010). However, the present study sought to address this omission and found that when accounting for experiences of depression in the study sample of interpersonal trauma survivors, that the once notable relationships between PTSD symptom severity and experiences of emotional numbing, empathy, and perceptions of social support were no longer significant. It should likewise be noted that contrary to previous research (O'Connor, et al., 2007; O'Connor, Berry, Weiss, & Gilbert, 2002), the present study found a significant inverse relationship between PTSD and empathy suggesting that as depressive symptomatology increased, empathic capacity decreased. The reader must consider, however, that in O'Connor and

colleague's study (2002) the only Interpersonal Reactivity Index (M. H. Davis, 1980) subscale of empathy that was significantly positively correlated with depression was that of personal distress, which captures the tendency to become anxious and upset in tense interpersonal settings and has been argued by some (Baron-Cohen & Wheelwright, 2004) as not being a theoretically-driven component of empathy. Thus in the present study it appears as if the severity of a survivor's depression over and above the severity of her posttrauma response may influence her ability to perceive or volitionally express emotions, experience empathy and perceive the positive support of others.

Such findings, however, are inconsistent with previous literature (Feeny, et al., 2000; Johnson, Palmieri, Jackson, & Hobfoll, 2007). Johnson, Palmieri, Jackson, and Hobfoll (2007) in particular found that PTSD symptom severity, most notably emotional numbing, led to later and more pronounced interpersonal deficits even when controlling for depression (using the full version of the CES-D used in the present study) in women who had survived childhood and/or adult interpersonal violence. The most notable difference between the present study and that of Johnson and colleagues (2007) included the sample size, with the later having over 200 participants. Such draws into question the statistical power of the present study given a sample size of 81.

Similarly to the present study, however, the authors (Johnson, et al., 2007) neither controlled for time since the trauma occurred nor examined the change in depressive or posttrauma symptoms over a protracted course. As such, similar to debates surrounding the directionality of the relationship between PTSD severity and social support (King, et al., 2006), the cross-sectional design of the present study complicate an interpretation of

the influence of depression in this study. This present study documents experiences at a single moment in time in the lives of this sample of survivors, some of whom experienced their traumas nearly a decade prior to the study being conducted. As such, it is impossible in the present study to determine the sequential course of development of the survivor's posttraumatic and depressive symptomatology.

Using behavioral, neuroimaging and physiological paradigms, researchers have determined not only that interpersonal factors such as social isolation, perceived social rejection and self-stigma, all shown to be potential facets of PTSD, actually lead to depression (Grippo et al., 2007; Hames, Hagan, & Joiner, 2013; Slavich, O'Donovan, Epel, & Kemeny, 2010; Slavich, Way, Eisenberger, & Taylor, 2010), but that the loss of emotionally supportive relationships served as a significantly stronger predictor of later depression (mean interval of 18 months) for females than for males (Kendler, Myers, & Prescott, 2005). Expounding the premise of interpersonal neurobiology (Siegel, 2001), Cozolino (2010) stated, "Without mutually stimulating interactions, people and neurons wither and die. In neurons, this process is called apoptosis, while in humans it is called…depression" (p. 197). Studies further suggest that aberrant activation of the insular cortex, anterior cingulate and the HPA-axis, areas likewise associated with posttrauma pathology, may regulate the early relationship between negative social experiences and depression (Nestler et al., 2002; Slavich, O'Donovan, et al., 2010; Slavich, Way, et al., 2010). Furthermore, research has been proposed that depression, similarly to PTSD, leads to a dysregulation of the autonomic arousal system (Chambers & Allen, 2002; Porges, 2001, 2003a). Such research suggests that individuals

experiencing depressive symptoms may be hypoaroused and thus be may not be functioning from the ventral vagal Social Engagement System zone of autonomic arousal that serves to promote optimal interpersonal functioning (Porges, 2001, 2003a). In this way, researchers have elucidated that experiences of depression can in turn exacerbate perceived rejection, social connectedness and deplete overall social skills (Hames, Hagan, & Joiner, 2013). Thus, one explanation of these findings may be that experiences of trauma lead to PTSD, which, by way of emotional numbing in particular, induce faulty perceptions of social support and in turn bring about experiences of depression. When a survivor begins to experience symptoms of depression in addition to PTSD, perhaps it becomes an even more pervasive cycle of emotional numbing, empathic decline and deteriorating perceptions of positive support.

Critically important in the present findings, however, is the resilience of the relationship between numbing and empathy when controlling for depression. Even when controlling for depression, there is a significant inverse relationship between experiences of empathy and emotional numbing. This finding validates previous research detailing the significant relationship between these two constructs and suggesting that intrapersonal emotional awareness is essential to experiences of empathy (Baumeister, et al., 2009; Decety & Jackson, 2006; Moriguchi, et al., 2007). As such, regardless of the potential cause of the emotional numbing or decreases in empathic capacity, whether it be the posttrauma response, depression or some collective influence of the two, it again appears as though an alleviation of emotional numbing would potentially be associated with an increase in empathy. Such a finding would have notable implications on working with

survivors of trauma and understanding trauma responses in individuals both with and without comorbid depression.

Overview of Principal Findings

The present study confirmed all but one of the proposed study hypotheses, effectively expanding research related to experiences of empathy in trauma survivors, the mediating role of emotional numbing in that relationship, and the influence of both on perceptions of social support. The severity of one's posttrauma response was significantly associated with perceptions of social support availability and valence and also predictive of empathy and emotional numbing in survivors. Furthermore, emotional numbing appears to be driving the relationship between PTSD and empathy. As such, ameliorating experiences of emotional numbing in survivors may improve a survivor's ability to express and/or perceive empathy, even if the survivor is experiencing symptoms of depression in addition to posttrauma pathology. Furthermore, positive numbing in particular is predictive of perceptions of positive social support. Thus in addition to improving empathy, alleviating a survivor's numbing particularly in relationship to positive emotions may enhance her perceptions of social support. Unexpectedly, however, this relationship between numbing and social support does not appear to be mediated by a survivor's capacity for empathy. Although experiences of empathy may be associated with perceptions of social support availability and valence (as suggested by the significant bivariate correlations), in the present study it does not function as the path by which numbing leads to decreased perceptions of support. It is possible, however, that as

positive numbing predicts both empathy and perceptions of positive social support, alleviating numbing may lead to concurrent improvements in both.

However, depression was found to intercede in the relationship between PTSD severity and experiences of empathy, numbing and perceptions of support as well as in relationships between emotional numbing and perceptions of support. The directionality of the relationships between PTSD, depression, numbing, empathy and social support however cannot be determined given the cross-sectional design of the present study and the inability to account for the time that has elapsed since the trauma occurred. Yet, even when controlling for depression the significant relationship between emotional numbing (inclusive of both positive and general numbing) and empathy remains, suggesting that notwithstanding the source of the numbing, less numbing is significantly associated with and may even predict increased empathic capacity.

Taken together these results suggest that once an individual begins to experience co-morbid depression, the depression itself may be more strongly related to the numbing, empathy and perceptions of social support that were once predicted by the PTSD severity. This does not entirely preclude, however, the notion that there may be an opportunity to intervene prior to the onset of co-morbid depression (again presupposing that the development of depression and PTSD do not occur in tandem, but yet the depression results from the initial PTSD symptomatology). If such is the case, it appears as if emotional numbing, which both mediates the effects of PTSD symptom severity on empathy, in some cases significantly predicts perceived social support in survivors, and shows an enduring significant relationship with empathy in the face of co-morbid

depression, may very well be the optimal target for clinical interventions with survivors. By improving numbing, clinicians could theoretically improve potential depleted empathy in their survivor clients, which is known to be integral to successful therapeutic interventions. Furthermore, previous evidence indicates that both emotional numbing and depression reflect a hypoaroused autonomic nervous system that may not be primed for optimal social interaction. Such would suggest that working to regulate autonomic arousal in survivors may not only improve emotional numbing and depressive symptomatology but in improving both may also improve perceptions of positive support both in therapy and with friends, family and significant others who may be reaching out to help. Specific clinical implications of the present findings will be explored following a consideration of the limitations that may have influenced the results of the study.

Study Limitations

Notwithstanding careful consideration to study design, several potential limitations remain that may confound or complicate conclusions drawn from the study findings. The model for the present study was built upon theories of PTSD that postulate that the traumatic events and neurophysiological corollaries of trauma lead to difficulties with emotional numbing and empathy. However, given the unforeseen nature of trauma, studies of traumatic reactions such as the present study are largely retrospective. As such, it is difficult to determine whether individuals who eventually develop PTSD may have had lower baseline levels of empathy or perceived social support, or a propensity toward depression or emotional numbing prior to experiencing trauma. Furthermore, as the present study was cross-sectional rather than longitudinal in nature, findings could not

substantiate a possible directionality of the relationship between PTSD, emotional numbing, empathy, perceptions of social support, and depression. In addition, as the present study did not control for substance abuse, and given the pronounced co-occurrence between substance abuse, depression and posttraumatic stress disorders as well as the effect of substance use on emotional experiencing, interpersonal relationship and empathy, the possibility exists that substance abuse disorders may be contributing to the relationships found between PTSD, depression, emotional numbing, empathy, and perceptions of social support availability and valence.

Additionally, the present study did not control for experiences of iterative trauma across the lifespan. Although the present study examined adult women who have experienced interpersonal trauma in late adolescence and adulthood, it did not preclude the participation of women who have likewise experienced abuse as a child. Due to the considerable rates of re-victimization later in life for children who have experienced childhood abuse (including witnessing partner violence among caregivers), using childhood maltreatment as exclusion criterion would severely limit the population from which to sample and create significant difficulty in recruiting a large enough sample size for statistical analyses. However, research substantiates the notable potential differences in the course and presentation of posttrauma responses (both physiologically and psychologically) of individual who have experienced childhood maltreatment from those who have not (Cloitre, et al., 2009; A. Cook et al., 2005). As such, examining these divergent populations in detail will be vital to a clear understanding of the relationship

between traumatic responses, emotional numbing, empathy and perceptions of social support and will be part of the larger research agenda of the author.

Similar to the concerns regarding the heterogeneity of the research sample by including women with a history of child maltreatment, survivors of partner violence and sexual assault may also represent two distinct populations with varying posttrauma responses. Some research suggests that survivors of partner violence, due to the recurrent and prolonged nature of the trauma as well as the trauma occurring in the context of an attachment bond, more often experience complex forms of posttraumatic stress similar to those experienced by survivors of childhood abuse, torture, and prisoners of war (Courtois, 2004; Ebert & Dyck, 2004). Yet owing to similar concerns regarding sample size, the researcher chose to include women who have experienced either form of interpersonal trauma. Unfortunately, however, the complexity of the trauma experienced by the study sample in addition to the small sample size did not allow for an examination of trends among these subpopulations of interpersonal trauma survivors, namely survivors of single incident sexual assault during late adolescence or adulthood, those who experience partner violence in late adolescence and adulthood, those who experienced childhood maltreatment, and those who have experienced pervasive acts of interpersonal violence across her life.

In addition to the retrospective and cross-sectional nature of the design as well as the complicated and iterative nature of the traumas experienced in the present sample, a number of participating women did not identify the ages at which the adult traumas occurred. Such omissions complicated a consideration of time elapsed since the most

recent trauma within the statistical analyses. As such, the possibility remains that the considerable variability in the time since the trauma occurred may be a confounding factor in this study and that varying patterns in the relationships between these variables may exist as a product of the duration of time since the trauma occurred.

A further concern in the present study was the failure to consider the influence of social desirability on participant responding and consequently the results. Research has shown that social desirability may introduce bias in assessments for PTSD (Brunet, Boucher, & Boyer, 1996), depression (Soubelet & Salthouse, 2011) and empathy (Lawrence, et al., 2004; Singer & Lamm, 2009). Thus, scales on these scores may have not accurately reflected the disposition of respondents. Nevertheless it is difficult to assess the direction in which the scales may have been influenced in the present study as some participants may have had motivations to intentionally exaggerate symptomatology, while others may have wanted to decrease symptomatology, especially given that a notable proportion of the respondents were currently facing civil or criminal court cases for custody or partner-assault (this information was gathered through unsolicited feedback from multiple participating domestic violence centers with whom the researcher coordinated and not assessed directly in the study). As such, it may be important to consider socially desirable responding in future studies.

One means of controlling for social desirability lies in the use of objective measures of the study variables. Substantial research denotes the importance of the pre-conscious attributes of much of the symptomatology associated with PTSD and depression. Objective measures of the study variables that rely on bottom-up (i.e.,

originating from limbic and autonomic responses outside the conscious awareness) or preconscious processing may better index underlying neurological aberrations rather than conscious responses influenced by social desirability and additional response biases. Such objective assessments could occur by way of neuroimaging, biochemical assay, or psychological assessments with an indiscernible objective to the respondent (e.g., emotional contagion tests of empathy),

The size of the present sample constitutes a final limitation of the present study. A sample size of less than 100 participants sorely limits the power of the present statistical tests, especially given the small to moderate effect sizes found in previous studies. A larger sample would allow for more power tests of the potential subtle interactions between the study variables and would likewise provide the power needed to test for the effects of other potential confounding variables.

Despite such limitations, the findings from the present study yield considerable implications to trauma theory, clinical practice and counselor education. Such finding likewise serve as a first step for a line of research to continue elucidating how best to understand, counsel and training others in counseling women who have survived horrific acts of interpersonal violence.

Implications

Several notable implications extend from the present findings and expand the knowledge base relating to trauma theory, clinical practice with trauma survivors and in educating future counselor to assess for trauma and work with survivors.

Trauma Theory

In addition to validating established empirical knowledge in the field, the present study adds to the conceptual understanding of traumatic responses in female survivors of interpersonal violence. First and foremost it extends findings related to the empathic experiences of survivors. Previous research has established that when compared to individuals not exposed to traumatic events, trauma survivors demonstrate significantly lower levels of empathy (Mazza, et al., 2012; Nietlisbach, et al., 2010). The present study contributes to this knowledge by not only establishing a relationship between PTSD and empathy specifically in female survivors of interpersonal trauma but also demonstrating that the severity of her PTSD symptomatology is predictive of her empathic capacity. It was also found that empathy is significantly related to but does not independently predict perceptions of social support. The present study likewise determined that the degree of general and positive emotional numbing experienced by a survivor mediates the relationship between the severity of the survivor's posttrauma symptoms and her experiences of empathy. Such may suggest that within the context of therapy, the severity of a survivor's emotional numbing may influence her experience of empathy in the therapeutic relationship.

The present study further enriches trauma theory by elucidating the influence of co-morbid depression on an interpersonal trauma survivor's experiences of posttrauma symptom severity, emotional numbing, empathy and perceptions of social support. Although additional research is needed to confirm this relationship, it appears as though in the face of pronounced depression, PTSD symptom severity is no longer significantly

related to a survivor's degree of emotional numbing, empathic capacity or perceptions of social support. This finding, which contradicts previous research (Feeny, et al., 2000; Johnson, et al., 2007), draws into question the origin of such incongruous results as well as the directionality of the relationship between PTSD and depression in survivors of interpersonal trauma. However, the current findings suggest that when a survivor is also experiencing co-morbid depression, the symptoms of the depression may be more debilitating than the PTSD symptomotalogy itself and thus should possibly be a focus of early interventions in clinical settings.

As a final novel insight into the experiences of interpersonal trauma survivors, the present research found that the relationship between emotional numbing and empathy remained significant even in the face of co-morbid depression. The resiliency of this relationship suggests that survivors, both with and without concurrent depressive symptomatology, who are experiencing emotional numbing, are also at risk for a compromised capacity to experience empathy. Thus as suggested by previous studies (Breslau, et al., 2005; Feeny, et al., 2000; A. G. Harvey & Bryant, 1998; Roemer, et al., 1998), emotional numbing appears to be central to experiences of PTSD, for survivors both with and without co-morbid depression, and as such should be a central focus of early clinical interventions.

Clinical Practice

Given such contributions to trauma theory, findings from the present study also have notable implications for therapeutic approaches to working with female survivors of interpersonal trauma. As has been suggested by previous research, it is vital that

clinicians assess for past trauma when beginning to work with a new client (Frueh, et al., 2002; Gold, 2004; Ullman, 1999; Worell & Remer, 2003). The literature indicates that the preponderance of practicing therapists, however, do not adequately assess for a history of trauma (Young, et al., 2001), which may lead to misdiagnoses, faulty client conceptualizations, perpetuate client self-blame, decrease already precarious feelings of survivor trust, compromise the therapeutic relationship, and ultimately, however unintended, revictimize clients (Frueh, et al., 2002; Gold, 2004; Ullman, 1999; Worell & Remer, 2003). The present research, however, suggests that not only should a counselor assess for a history of trauma, but that clinicians working with female survivors of interpersonal trauma in particular should likewise assess for concurrent experiences of co-morbid depression and positive emotional numbing. As was evidenced in the present research, symptoms of depression can have notable effects on the relationships between PTSD severity, empathy, emotional numbing and perceptions of social support availability and valence, and thus may have implications on the therapeutic interventions used in treatment. Positive emotional numbing in survivors both with and without co-morbid depression was shown to have a significant relationship with, and in some cases predict, empathic capacity in survivors. If empathic capacity is impaired, the severity of emotional numbing of the client could thereby have implications on the ability of or pace at which the client can effectively form a therapeutic alliance with the clinician, a key to successful therapy. Thus, assessments of both depression and positive numbing could inform early interventions that may be warranted with the client and benefit the overall

efficacy of therapy, namely approaches to reduce the positive emotional numbing and depression she is experiencing.

In this way, findings from the present study have further implications on the actual therapeutic interventions employed by counselors. Despite the popularity of Cognitive Behavioral interventions in trauma research and practice, there is currently no accepted 'gold standard' among PTSD interventions, nor has a particular treatment approach been collectively endorsed across clinicians. Researchers have demonstrated that of the interventions currently being studied, none are successful in "addressing the full range of clinical problems observed in trauma survivors" (p. 941; McFarlane & Yehuda, 2000). Leiner and colleagues (2012) suggest that irrespective of the availability of effective therapeutic interventions survivors of sexual assault in particular, owing to the preponderance of emotional numbing in this population, do not respond to available treatments. In studies detailing the effects of psychotherapy on PTSD symptom clusters, researchers found that improvements in emotional numbing following psychotherapy were distinctively associated ($p < 0.001$) with improvements in interpersonal relationships (Lunney & Schnurr, 2007; Schnurr, et al., 2006). Furthermore, although various models of trauma treatment suggest increasing social support as a means of decreasing PTSD symptomatology (Riggs, 2000), if survivors are experiencing difficulties in accurately perceiving social support or in expressing or receiving empathy from others, cultivation of social support both within and outside of the therapeutic relationship may be sorely compromised. The findings from the present study present

valuable implications for the effective treatment of trauma survivors and may shed light on the missing components of efficacious interventions integral to client healing.

As has been suggested in the preceding discussions, present findings appear to highlight two primary potential foci of early therapy, namely the alleviation of emotional numbing and the mitigation of depressive symptomatology that may present alongside or as a corollary of PTSD. A central notion exists among many trauma theorists that they key to lasting treatment for PTSD resides in the successful integration of bifurcated memory of the traumatic event, whereby the declarative memory of the traumatic event is reintegrated with the powerfully distressing implicit, emotional and somatic traumatic memory (Foa & Rothbaum, 1998). However, without an empathic connection (consequent to emotional numbing) and the ensuing trust, safety, and emotional regulation that flows from this connection, such integration proves difficult and can lead to a worsening of symptoms and potentially even retraumatizing to the survivor (Jaycox & Foa, 1996; Jaycox, et al., 1998; A. W. Wagner, et al., 2003). Furthermore, emotional engagement, which can be inhibited by emotional numbing and depression, is critical in the successful emotional processing of traumatic experiences and thus may interfere with the success of therapeutic exposure (Jaycox, et al., 1998). As such, the initial focus of trauma recovery should be the alleviation of emotional numbing and depressive symptomatology that hinder emotional engagement, development of the therapeutic relationship, accurate perceptions of social support, and effective coping strategies needed to tolerate and benefit from later treatment stages aimed at exposure and memory integration (Levitt & Cloitre, 2005).

Several therapeutic approaches currently exist that may serve as early interventions to successfully address both improvements in emotional numbing and co-current depression within trauma survivors. Although not as well established in the literature and commonly omitted from traditional "talk therapies" that rely primarily on cognitive or emotional processing, such interventions are informed by the neurophysiology of trauma and cultivate an awareness of the internal states of the body in an effort to regulate the autonomic nervous system and promote beneficial neurophysiological functioning. Porges' (2011) Polyvagal Theory has led to the development of an intervention that promotes the activation of the social engagement system and thus leads to not only a decrease in hypoaroused states, characteristic of both emotional numbing and depression, but possibly enhanced perceptions of interpersonal interactions and experiences of empathy.

The *Listening Project* (Porges, 2010) relies on the use of acoustic stimulation to improve social behavior. Originally developed for use with individuals experiencing symptoms of autistic spectrum disorder, it is proposed to hold promise for other clinical populations that experience difficulty in social engagement as well, most notably trauma survivors and individuals suffering from depression. According to the core premises of the Polyvagal Theory (Porges, 2010), the ventral vagal branch of the autonomic nervous system is known to not only regulate heart rate but is also instrumental in regulating muscles of the face, inner ear, mouth, larynx and pharynx. Optimal control of this muscular system allows for the parsing out of the human voice from other environmental sounds and facial reactivity that induces connection, empathy and resonance in social

settings. Furthermore, regulation of the muscles of the inner ear in particular was found to be associated with the secondary regulation of the set of facial muscles that control facial expression, eye gaze and vocalization. It was thus postulated that by stimulating the muscles of the inner ear, one could in effect *exercise* the muscles integral to effective social functioning and accurate perceptions of the social responses of others. This stimulation therefore serves to regulate the autonomic nervous system and could potentially assist survivors experiencing emotional numbing and depression in cultivating an optimal state of arousal capable of effectual social engagement. This latter step, regulation of the autonomic arousal system, is further proposed to induce a sense of safety in the client at a very base, bottom-up and nonconcious level, a process Porges (2003b) termed neuroception. The intervention consists of five, 45 minute sessions utilizing tones corresponding to the frequency of the human voice. Clinicians working with survivors of interpersonal trauma experiencing emotional numbing and depression could employ this intervention as an adjunct or precursor to therapy. The induced sense of safety and regulation of the autonomic arousal system thus could furthermore ease the establishment of the therapeutic relationship and prepare the survivor for later therapeutic interventions.

Similar to acoustic stimulation proposed by Porges (2010), both yoga (Gerbarg & Brown, 2005; Streeter, Gerbarg, Saper, Ciraulo, & Brown, 2012) and mindfulness practices (Ivanovski & Malhi, 2007) have been shown to regulate functioning of the autonomic nervous system. Evidence further suggests that both yoga and mindfulness (Hölzel et al., 2011; Spinazzola, Rhodes, Emerson, Earle, & Monroe, 2011) improve an

awareness of bodily states (i.e., physiological experience of the emotion) and an awareness of emotions (i.e., cognitive construct of the emotion), thus effectively improving the two primarily sources and manifestations of emotional numbing experienced in survivors. Taken together, these findings suggest that incorporating yoga and mindfulness into the counseling sessions or as an adjunct to therapy may help to mitigate numbing (via an improved awareness of bodily states as well as regulation of autonomic arousal) and depressive symptomatology found in hypoaroused states of posttraumatic pathology.

These are just two of a number of interventions growing in recognition and empirically-validated efficacy that could be used with survivors of interpersonal violence to mitigate difficulties in positive emotional numbing and depression that can derail empathic connections and obscure perceptions of positive support essential to client healing and lasting therapeutic change.

Counselor Education

Findings from the preset study furthermore inform the training of current and future counselors. Given statistics that one in five women will be sexually assaulted during her lifetime and one in four will survive repeated acts of physical, sexual and psychological violence at the hands of a partner, it is fair to say that that one quarter of the female clients with whom a counselor works will be a survivor of interpersonal violence. Thus it is essential that counselors be trained in the nuances of working with this population. Moreover, emphasizing the importance of integrating trauma theory in counseling pedagogy, the Counsel for Accreditation of Counseling and Related

Educational Programs (CACREP) put forth trauma-informed standards for each of the eight core curricular areas of demonstrated knowledge. Within Section II, *Professional Orientation and Ethical Practice*, the criteria state that counselors should understand the, "effects of … trauma-causing events on persons of all ages" (pp. 10-11; Council for Accreditation of Counseling and Related Educational Programs, 2009). Furthermore, unprepared counselors can unknowingly retraumatize clients, predominantly by pushing clients into working with traumatic memories before the client is ready, emotionally or physiologically (Wells, Trad, & Alves, 2003).The present findings contribute to a better understanding of trauma survivors, principally female survivors of interpersonal trauma.

Most notably, counselors are routinely taught that the cultivation of the therapeutic relationship and a counselor's genuine expression of empathy are fundamental to client change and lasting therapeutic benefit. Counselors-in-training are further taught that the client must also *perceive* that she or he is being understood and accepted. Yet much less frequently are counselors instructed in ways of knowing under what circumstances a client's ability to perceive this understanding and empathic resonance may be compromised or how to work with the client to enhance his or her capacity to feel this connection. If a counselor is unaware that a trauma survivor may have difficulty experiencing empathy due to the emotional numbing she is experiencing, the counselor, and likely the client, may misinterpret the potential difficulty in establishing rapport. Thus not only can this knowledge aid the counselor by informing

possible early interventions that decrease numbing, such as those discussed in the preceding section, but also the counselor is better equipped to help the client understand her experiences.

Similarly, counseling courses in diagnosis may include information on the comorbidity between PTSD and depression, but do not often express the import of that information on the manifestation of trauma symptomatology. The present study suggests that depression significantly influences experiences of emotional numbing, decreases in empathic capacity and perceptions of social support in survivors, more so than the PTSD symptoms themselves. As such, a counselor who does not understand this nuance in the relationship between PTSD and depression may fail to address the overriding debilitating influence of the depression and thus potentially struggle in making progress with the client and meeting the client where they are currently most struggling.

Lastly, training in the clinical interventions informed by the present research and discussions of the rational for incorporating such approaches early in therapy can equip counselors-in-training with potentially effective ways of decreasing the emotional numbing and depression experienced by survivors in interpersonal trauma. In doing so the counselor may not only enhance the therapeutic relationship but also prepare the client for later stages of therapy that will require emotional awareness, autonomic regulation and effective coping strategies.

Future Research

Notwithstanding the preliminary insights and implications of the current study, additional research is necessary to further elucidate the exceedingly complex

relationships between PTSD severity, emotional numbing, empathy, depression and perceptions of socials support in female survivors of interpersonal trauma. Initially, although significant correlations were established between depression and each of the study variables, it would be beneficial to statistically examine the mediating role of depression in the associations between PTSD symptom severity and emotional numbing (general and positive), empathy and perceptions of social support availability and valence as well as the interrelationship between these variables, most notably between positive emotional numbing and perceptions of social support. As such, extant research (finding from the present studies in combination with earlier literature) could be used to modify the present study model into an expanded, theoretically driven model that includes the hypothesized influence of depression. Structural equation modeling could be employed to examine the direct and indirect effects between the proposed exogenous and endogenous variables. Such a design however would require a substantially larger sample size, which would be beneficial in increasing the power of the statistical tests. This line of research would help to clarify the nuances in how depression is influencing the interpersonal and emotional ramifications of trauma indexed by the study variables.

It would furthermore be helpful to investigate this relationship longitudinally, using a repeated measures design, to examine the potential directionality of the causal influences among the variables. Past evidence has examined the relationship between PTSD symptom severity and perceptions of social support over time, which resulted in the development of the erosion theory of social support among survivors (King, et al., 2006; Laffaye, et al., 2008). This research, however, did not investigate the influence of

empathy, emotional numbing and depression in this relationship. It would be interesting and quite informative to understand how the direct and indirect effects among the study variables change over time, extending out from the most recent traumatic event. Furthermore, it would be beneficial in this line of research, given an adequate sample size, to compare survivors who went on to develop co-morbid depression and those who did not in relationship to their experiences with emotional numbing, empathy and perceptions of social support valence and availability.

In considering the development of such future research, however, such must also include a stronger and more comprehensive assessment of the time that has elapsed since the most recent traumatic experiences. Examining methodologies used in past research that have been successful in collecting this data is thereby warranted. A focus group with survivors to explore the most practical and efficacious manner of eliciting such information may likewise be beneficial.

An additional line of needed research would include an exploration of the differences between survivors of single incident sexual assault, partner violence, child maltreatment, and those who have experienced iterative trauma cross the lifespan. Research has begun investigating a complex form of posstraumatic stress disorder characterize as Disorders of Extreme Stress not Otherwise Specified (DESNOS; van der Kolk, et al., 2009; van der Kolk, et al., 2005). Six-eight percent of individuals who experienced sexual abuse as a child were found to have DESNOS-related symptoms over and above an expression of PTSD alone (S. Roth, et al., 1997). Further evidence suggests that survivors of intimate partner violence may also fall into this category of complex

trauma (Courtois, 2004). Such evidence suggests that interpersonal trauma occurring in childhood or repeated incidence of partner violence during adulthood, instances that involve a breakdown of critical attachment relationships, may have a notably different presentation or course than isolated events interpersonal violence occurring in adulthood (Ford, et al., 2006). As such, given the extensive partner violence and childhood experiences of violence represented in the present sample, the current study may have indexed experiences of DESNOS rather than PTSD. Research distinguishing the trauma response of survivors of iterative trauma in childhood or adulthood, women experiencing revictimization across the lifespan and survivors who experienced single-incident adult experiences of sexual assault would be helpful in understanding how each form of violence differentially affects experiences of and relationships between empathy, numbing, and the capacity to accurately perceive the positive support offered by caring individuals.

This line of research, however, will also call for a careful consideration of how to differentiate between these populations. For example, as was denoted in the present sample, would a single incidence of rape by a dating partner be constituted as partner violence or sexual assault as an adult? Scales such as the WEB (Smith, et al., 1995) will be integral in this discussion and future studies, yet raises the question of whether a similar scale could be developed for childhood incidences of abuse. As suggested by Smith and Earp (1999), researchers often fall into a "measurement trap," whereby the concept of partner violence is characterized by discrete events and an emphasis on certain forms or acts of violence, which constrains research in this field. Likewise, it will be vital

to consider developmental neuroscience in discussions of such distinctions between childhood and adulthood experiences of trauma. Culture, Institutional Review Boards, and legal arenas have one manner of distinguishing between a child and an adult, however, findings from studies elucidating the neurological development of the human brain suggest that 18 years of age may be a rather arbitrary in discussions of how trauma affects the neurophysiology of a survivor, particularly a female in and around menarche. This is even more pressing as research substantiates that females between the ages of 16 to 24 years are especially vulnerable to intimate partner violence, with one in four women 14 to 18 years old reporting physical and/or sexual assault by a partner (Amar & Gennaro, 2005; Silverman, et al., 2001; U.S. Department of Justice, 2001). There may be no ready answer to such a discussion, yet the discussion nevertheless must occur to determine a theoretically-backed rationale for distinguishing between these populations.

Future research also must be conducted to directly inform clinical practice. From a clinical standpoint, it will be critically important to elucidate potential differences between received/perceived and expressed empathy, especially in the context of the therapeutic relationship. This distinction is critical to the work of counselors and counselor educators. Measures that record the empathy that a client perceives from clinicians during therapeutic exchanges will be useful in determining whether the compromised empathic capacity survivors can experience following trauma directly influences the therapeutic relationship and his or her ability feel the empathy being offered by a counselor. Once a distinction has been made as to the best manner for conceptualizing and measuring the empathy impacted by emotional numbing, research

can begin to explore the effectiveness of therapeutic interventions in improving a survivor's posttrauma pathology. As such studies elucidating the effectiveness of the proposed clinical interventions, such as *The Listening Project*, on experiences of depression and posttraumatic symptomatology, emotional numbing, empathy and perceptions of social support would be beneficial to empirically validate the use of these approaches to early trauma therapy.

An additional line of research, which would be both clinically and theoretically advantageous, would address the burgeoning literature elucidating the distinction between preconscious, bottom-up responsive functioning versus conscious, volitional top-down driven functioning in certain trauma-related variables such as affective regulation, social cognitive, and somatic experiences of trauma (Porges & Furman, 2011; Tull & Roemer, 2003; van der Kolk, 1994). For example, it would be interesting to determine if similar findings remained when using an objective measure of empathy (e.g., test of emotional contagion) and emotional numbing. For example, is the emotional numbing experienced by survivors more rooted in an inability to somatically experience the emotion, the neurological translation of that physical sensation into a word, or in the cognitive suppression of that emotion? The majority of current therapeutic approaches focus on conscious thoughts and feelings, however, such approaches may not be appropriate for individuals who are having difficulty somatically feeling emotions or even translating that sensation into a conscious feeling. This line of research could address the clinical implications of such a distinction and best-practices for moderating

preconscious versus conscious presentations of affective, somatic and interpersonal outcomes of trauma within a clinical setting.

Along those lines, lastly and possibly most importantly, the researcher is aware that this study proposes to investigate the impact of posttrauma pathology on perceptions of social support, yet uses solely behavioral measures to examine this relationship. As such, a foremost focus of future research will be to pair physiological and neurological indices of autonomic arousal as well as neurological correlates of emotional numbing, empathy, trauma and depression with the behavioral assessments. This may also assist in teasing apart the complicated association between PTSD symtomatology, depression and experiences of emotional numbing, empathy and perceptions of social support. As part of a future research agenda, the author will conduct cross-disciplinary research to further investigate how levels of oxytocin and cortisol as well as patterns of cerebral blood flow in areas of the cortex associated with empathy and perceptions of emotional awareness correspond to perceptions of social support availability and valence across various ages and populations of interpersonal trauma survivors including those with and without co-morbid depression.

> …We must recollect that all of our provisional ideas in psychology will presumably one day be based on an organic substructure.
> ~ Sigmund Freud, 1914, On Narcissism

Conclusion

Approximately one in four women will be a survivor of either sexual assault or partner violence at some point in her life, countless others will face experiences of

childhood maltreatment, and still others will endure a lifetime of violence and battering at the hands of family members, partners, acquaintances, and strangers. Violence against women has long been an epidemic, and such acts of interpersonal trauma frequently leave survivors facing myriad deleterious physiological, psychological, physical and interpersonal consequences, most notably experiences of posttraumatic stress disorder and concurrent depression. Social support has been well established as a critical component to trauma recovery and the alleviation of PTSD symptomotology, but until recently researchers had not considered how the neurophysiological aftermath of trauma may influence a survivor, especially her ability to accurately perceive the positive support of individuals around her.

The autonomic dysregulation and ensuing compromised neurological functioning that follows interpersonal trauma frequently lead to emotional numbing in survivors. Lacking the ability to perceive or a willingness to experience a full range of emotions not only affects a survivor's perceptions of her own emotions but also potentially the ability to recognize emotions in others, perhaps largely due to the co-localization of neurological areas in the brain that process these experiences. Problems with emotional numbing therefore may leave survivors with a compromised ability to experience and perceive empathy. Two previous studies determined that empathy was in fact significantly lower in individuals who had experienced trauma when compared to individuals who had not (Mazza, et al., 2012; Nietlisbach, et al., 2010). Neither study however explored the mediating role of emotional numbing in this relationship nor the consequences of decreased empathy on a survivor's perceptions of social support. Furthermore, although

depression is known frequently accompany experiences of posttraumatic stress and share similar features, the authors did not assess the potential mediating role of depression in that relationship. The present study aimed to fill that gap in the literature and directly assess the mediating role of emotional numbing in the relationship between PTSD symptom severity and empathic capacity as well as the mediating role of empathic capacity in survivors' perceptions of social support availability and valence.

Although limitations were present this study, the current research was the first step in a series to expand trauma theory and elucidate potential efficacious clinical practices for helping survivors to heal from grievous experiences of sexual assault and partner violence and potentially from a lifetime of iterative violence. In particular the present study found that the difficulties in empathy experienced among survivors are directly related to the severity of her PTSD symptoms. Moreover, her experiences with emotional numbing are the driving force behind not only her difficulties with empathy but potentially her perceptions of the availability and valence of the social support around her. Her experiences with empathy, although directly related to her perceptions of support, are not predictive of such perceptions when her level of emotional numbing is taken into account. Lastly, the degree of any depressive symptoms she is experiencing may be more influential on all of these relationships than are her trauma symptoms specifically. Emotional numbing, however, which has been shown to be a common factor in both depression and PTSD, continues to show a strong relationship with empathy even in the face of depression.

Such findings have marked implications on the way counselors understand and work with female survivors of interpersonal trauma. The need to assess for and work with symptoms of emotional numbing and depression early in therapy are most notable among these. Future research will serve to expand the many potential advantages that such findings can have on better conceptualizing the influence of interpersonal trauma on a women's ability to experience and express empathy and a full range of emotional experiences and benefit from the positive social support that exists around her to heal the effects of such horrific experiences of abuse, violence and victimization.

It is the author's profound hope that women worldwide will soon find freedom from the epidemic that is violence against women. However, until that day has been secured, she will continue to work relentlessly in hopes of helping survivors find freedom from the deleterious ramifications of interpersonal trauma. As one survivor so powerfully and eloquently stated during the development of this study, "*If we all work together toward this common goal, we can possibly just make a difference*."

REFERENCES

Adenzato, M., Todisco, P., & Ardito, R. (2012). Social cognition in anorexia nervosa: evidence of preserved theory of mind and impaired emotional functioning. *PLoS ONE, 7*(8), e44414.

Adkins, J. W., Weathers, F. W., McDevitt-Murphy, M., & Daniels, J. B. (2008). Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *Journal of Anxiety Disorders, 22*(8), 1393-1402. doi: 10.1016/j.janxdis.2008.02.002

Ahrens, C. E., Cabral, G., & Abeling, S. (2009). Healing or Hurtful: Sexual Assault Survivors' Interpretations of Social Reactions from Support Providers. *Psychology of Women Quarterly, 33*(1), 81-94. doi: 10.1111/j.1471-6402.2008.01476.x

Ainsworth, M. D. (1989). Attachments beyond infancy. *Am Psychol, 44*(4), 709-716.

Alexander, C. J. (2002). Violence in gay and lesbian relationships. *Journal of Gay & Lesbian Social Services, 14*(1), 95-98. doi: 10.1300/J041v14n01_06

Allison, C., Baron-Cohen, S., Wheelwright, S. J., Stone, M. H., & Muncer, S. J. (2011). Psychometric analysis of the Empathy Quotient (EQ). *Personality and Individual Differences, 51*(7), 829-835. doi: 10.1016/j.paid.2011.07.005

Amar, A. F., & Gennaro, S. (2005). Dating violence in college women: associated physical injury, healthcare usage, and mental health symptoms. *Nurs Res, 54*(4), 235-242. doi: 10.1097/00006199-200507000-00005

Amdur, R. L., Larsen, R., & Liberzon, I. (2000). Emotional Processing in Combat-Related Posttraumatic Stress Disorder: A Comparison with Traumatized and Normal Controls. *Journal of Anxiety Disorders, 14*(3), 219-238. doi: 10.1016/s0887-6185(99)00035-3

American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III)*. Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR).* Arlington, VA: American Psychiatric Association.

Amir, M., Kaplan, Z., & Kotler, M. (1996). Type of Trauma, Severity of Posttraumatic Stress Disorder Core Symptoms, and Associated Features. *The Journal of General Psychology, 123*(4), 341-351. doi: 10.1080/00221309.1996.9921286

Andrews, B., Brewin, C. R., & Rose, S. (2003). Gender, Social Support, and PTSD in Victims of Violent Crime. *Journal of Traumatic Stress, 16*(4), 421-427. doi: 10.1023/a:1024478305142

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD Symptoms in Victims of Violent Crime: The Role of Shame, Anger, and Childhood Abuse. *Journal of Abnormal Psychology, 109*(1), 69-73. doi: 10.1037/0021-843X.109.1.69

Asmundson, G. J., Frombach, I., McQuaid, J., Pedrelli, P., Lenox, R., & Stein, M. B. (2000). Dimensionality of posttraumatic stress symptoms: a confirmatory factor

analysis of DSM-IV symptom clusters and other symptom models. *Behav Res Ther, 38*(2), 203-214. doi: 10.1016/S0005-7967(99)00061-3

Asmundson, G. J., Stapleton, J. A., & Taylor, S. (2004). Are avoidance and numbing distinct PTSD symptom clusters? *Journal of Traumatic Stress, 17*(6), 467-475. doi: 10.1007/s10960-004-5795-7

Bailey, P. E., Henry, J. D., & Von Hippel, W. (2008). Empathy and social functioning in late adulthood. *Aging & Mental Health, 12*(4), 499-503. doi: 10.1080/13607860802224243

Ballenger, J. C., Davidson, J. R., Lecrubier, Y., Nutt, D. J., Foa, E. B., Kessler, R. C., . . . Shalev, A. Y. (2000). Consensus statement on posttraumatic stress disorder from the International Consensus Group on Depression and Anxiety. *J Clin Psychiatry, 61 Suppl 5*, 60-66. doi: 35400008215353.0070

Baron-Cohen, S. (2005). *Mindblindness: An Essay on Autism and Theory of Mind*. Cambridge: MIT Press.

Baron-Cohen, S., & Wheelwright, S. (2004). The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism, and Normal Sex Differences. *Journal of Autism and Developmental Disorders, 34*(2), 163-175. doi: 10.1023/b:jadd.0000022607.19833.00

Barraza, J. A., & Zak, P. J. (2009). Empathy toward Strangers Triggers Oxytocin Release and Subsequent Generosity. *Annals of the New York Academy of Sciences, 1167*(1), 182-189. doi: 10.1111/j.1749-6632.2009.04504.x

Bauman, E. M., Haaga, D. A. F., & Dutton, M. A. (2008). Coping with Intimate Partner Violence: Battered Women's Use and Perceived Helpfulness of Emotion-Focused Coping Strategies. *Journal of Aggression, Maltreatment & Trauma, 17*(1), 23-41. doi: 10.1080/10926770802250942

Baumeister, R. F., DeWall, C. N., & Vohs, K. D. (2009). Social Rejection, Control, Numbness, and Emotion. *Perspectives on Psychological Science, 4*(5), 489-493. doi: 10.1111/j.1745-6924.2009.01159.x

Beck, J. G., Grant, D. M., Clapp, J. D., & Palyo, S. A. (2009). Understanding the interpersonal impact of trauma: Contributions of PTSD and depression. *Journal of Anxiety Disorders, 23*(4), 443-450. doi: 10.1016/j.janxdis.2008.09.001

Becker, J. B., Monteggia, L. M., Perrot-Sinal, T. S., Romeo, R. D., Taylor, J. R., Yehuda, R., & Bale, T. L. (2007). Stress and Disease: Is Being Female a Predisposing Factor? *The Journal of Neuroscience, 27*(44), 11851-11855. doi: 10.1523/jneurosci.3565-07.2007

Beeble, M. L., Bybee, D., Sullivan, C. M., & Adams, A. E. (2009). Main, mediating, and moderating effects of social support on the well-being of survivors of intimate partner violence across 2 years. *Journal of Consulting and Clinical Psychology; Journal of Consulting and Clinical Psychology, 77*(4), 718.

Bennice, J. A., Resick, P. A., Mechanic, M., & Astin, M. (2003). The relative effects of intimate partner physical and sexual violence on post-traumatic stress disorder symptomatology. *Violence and Victims, 18*(1), 87.

Bensley, L., Van Eenwyk, J., & Wynkoop Simmons, K. (2003). Childhood family violence history and women's risk for intimate partner violence and poor health. *American Journal of Preventive Medicine, 25*(1), 38-44. doi: 10.1016/s0749-3797(03)00094-1

Bird, G., Silani, G., Brindley, R., White, S., Frith, U., & Singer, T. (2010). Empathic brain responses in insula are modulated by levels of alexithymia but not autism. *Brain, 133*(5), 1515-1525. doi: 10.1093/brain/awq060

Blain, L. M., Galovski, T. E., & Robinson, T. (2010). Gender differences in recovery from posttraumatic stress disorder: A critical review. *Aggression & Violent Behavior, 15*(6), 463-474.

Blasco-Ros, C., Sánchez-Lorente, S., & Martinez, M. (2010). Recovery from depressive symptoms, state anxiety and post-traumatic stress disorder in women exposed to physical and psychological, but not to psychological intimate partner violence alone: A longitudinal study. *BMC Psychiatry, 10*(1), 98.

Bondy, S. J. (1996). Overview of studies on drinking patterns and consequences. *Addiction, 91*(11), 1663-1674.

Bora, E., Gökçen, S., & Veznedaroglu, B. (2008). Empathic abilities in people with schizophrenia. *Psychiatry Research, 160*(1), 23-29. doi: 10.1016/j.psychres.2007.05.017

Borja, S. E., Callahan, J. L., & Long, P. J. (2006). Positive and negative adjustment and social support of sexual assault survivors. *J Trauma Stress, 19*(6), 905-914. doi: 10.1002/jts.20169

Boscarino, J. A. (2006). Post-traumatic stress and associated disorders among Vietnam veterans: The significance of combat exposure and social support. *Journal of Traumatic Stress, 8*(2), 317-336.

Bosch, K., & Bergen, M. B. (2006). The Influence of Supportive and Nonsupportive Persons in Helping Rural Women in Abusive Partner Relationships Become Free from Abuse. *Journal of Family Violence, 21*(5), 311-320. doi: 10.1007/s10896-006-9027-1

Bouvier, P. (2003). Child sexual abuse: vicious circles of fate or paths to resilience? *The Lancet, 361*(9356), 446-447.

Bowlby, J. (1988a). *A Secure Base: Clinical applications of attachment*. London: Routledge.

Bowlby, J. (1988b). *A secure base: Parent-child attachment and healthy human development*. New York, NY: Basic Books.

Brady, K. T., Back, S. E., & Coffey, S. F. (2004). Substance Abuse and Posttraumatic Stress Disorder. *Current Directions in Psychological Science, 13*(5), 206-209. doi: 10.1111/j.0963-7214.2004.00309.x

Bremner, J. D., Randall, P., Scott, T. M., Bronen, R. A., Seibyl, J. P., Southwick, S. M., . . . Innis, R. B. (1995). MRI-based measurement of hippocampal volume in patients with combat-related posttraumatic stress disorder. *Am J Psychiatry, 152*(7), 973-981.

Bremner, J. D., Vythilingam, M., Vermetten, E., Southwick, S. M., McGlashan, T., Nazeer, A., . . . Charney, D. S. (2003). MRI and PET study of deficits in

hippocampal structure and function in women with childhood sexual abuse and posttraumatic stress disorder. *Am J Psychiatry, 160*(5), 924-932.

Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Can J Psychiatry, 47*(10), 923-929.

Breslau, N. (2009). The Epidemiology of Trauma, PTSD, and Other Posttrauma Disorders. *Trauma, Violence, & Abuse, 10*(3), 198-210. doi: 10.1177/1524838009334448

Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. L. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48*(3), 216-222. doi: 10.1001/archpsyc.1991.01810270028003

Breslau, N., Davis, G. C., Andreski, P., Peterson, E. L., & Schultz, L. R. (1997). Sex differences in posttraumatic stress disorder. *Archives of General Psychiatry, 54*(11), 1044-1048.

Breslau, N., & Kessler, R. C. (2001). The stressor criterion in DSM-IV posttraumatic stress disorder: an empirical investigation. *Biological Psychiatry, 50*(9), 699-704. doi: 10.1016/s0006-3223(01)01167-2

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and Posttraumatic Stress Disorder in the Community: The 1996 Detroit Area Survey of Trauma. *Arch Gen Psychiatry, 55*(7), 626-632. doi: 10.1001/archpsyc.55.7.626

Breslau, N., Reboussin, B. A., Anthony, J. C., & Storr, C. L. (2005). The structure of posttraumatic stress disorder: Latent class analysis in 2 community samples. *Archives of General Psychiatry, 62*(12), 1343-1351. doi: 10.1001/archpsyc.62.12.1343

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-Analysis of Risk Factors for Posttraumatic Stress Disorder in Trauma-Exposed Adults. *Journal of Consulting and Clinical Psychology, 68*(5), 748-766.

Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A Dual Representation Theory of Posttraumatic Stress Disorder. *Psychological Review, 103*(4), 670-686.

Brewin, C. R., Lanius, R. A., Novac, A., Schnyder, U., & Galea, S. (2009). Reformulating PTSD for DSM-V: Life after Criterion A. *Journal of Traumatic Stress, 22*(5), 366-373. doi: 10.1002/jts.20443

Briere, J., & Elliott, D. M. (2003). Prevalence and psychological sequelae of self-reported childhood physical and sexual abuse in a general population sample of men and women. *Child Abuse Negl, 27*(10), 1205-1222.

Briere, J., & Jordan, C. E. (2004). Violence against women: outcome complexity and implications for assessment and treatment. *Journal of Interpersonal Violence, 19*(11), 1252-1276. doi: 10.1177/0886260504269682

Briere, J., Kaltman, S., & Green, B. L. (2008). Accumulated childhood trauma and symptom complexity. *Journal of Traumatic Stress, 21*(2), 223-226. doi: 10.1002/jts.20317

Briere, J., & Scott, C. (2006). *Principles of trauma therapy: A guide to symptoms, evaluation and treatment.* . Thousand Oaks, CA: Sage Publications.

Brothers, L. (1989). A biological perspective on empathy. *Am J Psychiatry, 146*(1), 10-19.

Brown, P. J., & Wolfe, J. (1994). Substance abuse and post-traumatic stress disorder comorbidity. *Drug and Alcohol Dependence, 35*(1), 51-59.

Brown, T. A., Campbell, L. A., Lehman, C. L., Grisham, J. R., & Mancill, R. B. (2001). Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *J Abnorm Psychol, 110*(4), 585-599.

Brüne, M., & Brüne-Cohrs, U. (2006). Theory of mind—evolution, ontogeny, brain mechanisms and psychopathology. *Neuroscience & Biobehavioral Reviews, 30*(4), 437-455. doi: 10.1016/j.neubiorev.2005.08.001

Brunet, A., Boucher, C., & Boyer, R. (1996). Social desirability in the assessment of trauma. *Psychological Reports, 79*(2), 511-514.

Bryant, R. A. (2006). Acute stress disorder. *Psychiatry, 5*(7), 238-239.

Bryant, R. A. (2011). Acute stress disorder as a predictor of posttraumatic stress disorder: A systematic review. *Journal of Clinical Psychiatry, 72*(2), 233-239. doi: 10.4088/JCP.09r05072blu

Bryant, R. A., Moulds, M. L., Mastrodomenico, J., Hopwood, S., Felmingham, K., & Nixon, R. D. V. (2007). Who drops out of treatment for post-traumatic stress disorder? *Clinical Psychologist, 11*(1), 13-15. doi: 10.1080/13284200601178128

Buber, M. (1970). *I and Thou* (W. A. Kauffman, Trans. Third ed.). Edinburgh: T & T Clark.

Buie, D. H. (1981). Empathy: its nature and limitations. *J Am Psychoanal Assoc, 29*(2), 281-307.

Bush, G., Luu, P., & Posner, M. I. (2000). Cognitive and emotional influences in anterior cingulate cortex. *Trends in Cognitive Sciences, 4*(6), 215-222.

Butler, E. A., Egloff, B., Wlhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion, 3*(1), 48-67. doi: 10.1037/1528-3542.3.1.48

Cahill, L. (2003). Sex-related influences on the neurobiology of emotionally influenced memory. *Ann N Y Acad Sci, 985*, 163-173.

Campbell, A. (2010). Oxytocin and Human Social Behavior. *Personality and Social Psychology Review, 14*(3), 281-295. doi: 10.1177/1088868310363594

Campbell, R., Dworkin, E., & Cabral, G. (2009). An Ecological Model of the Impact of Sexual Assault On Women's Mental Health. *Trauma, Violence, & Abuse, 10*(3), 225-246. doi: 10.1177/1524838009334456

Campbell, R., Sefl, T., Barnes, H. E., Ahrens, C. E., Wasco, S. M., & Zaragoza-Diesfeld, Y. (1999). Community services for rape survivors: enhancing psychological well-being or increasing trauma? *J Consult Clin Psychol, 67*(6), 847-858.

Canty-Mitchell, J., & Zimet, G. D. (2000). Psychometric Properties of the Multidimensional Scale of Perceived Social Support in Urban Adolescents.

American Journal of Community Psychology, 28(3), 391-400. doi: 10.1023/a:1005109522457

Carr, L., Iacoboni, M., Dubeau, M.-C., Mazziotta, J. C., & Lenzi, G. L. (2003). Neural mechanisms of empathy in humans: A relay from neural systems for imitation to limbic areas. *Proceedings of the National Academy of Sciences, 100*(9), 5497-5502. doi: 10.1073/pnas.0935845100

Cascardi, M., Daniel O'Leary, K., & Schlee, K. A. (1999). Co-occurrence and correlates of posttraumatic stress disorder and major depression in physically abused women. *Journal of Family Violence, 14*(3), 227-249.

Cavada, C., & Schultz, W. (2000). The Mysterious Orbitofrontal Cortex. Foreword. *Cerebral Cortex, 10*(3), 205. doi: 10.1093/cercor/10.3.205

Cecil, H., Stanley, M. A., Carrion, P. G., & Swann, A. (1995). Psychometric properties of the MSPSS and NOS in psychiatric outpatients. *Journal of Clinical Psychology, 51*(5), 593-602. doi: 10.1002/1097-4679(199509)51:5<593::aid-jclp2270510503>3.0.co;2-w

Chambers, A. S., & Allen, J. J. (2002). Vagal tone as an indicator of treatment response in major depression. *Psychophysiology, 39*(6), 861-864.

Charuvastra, A., & Cloitre, M. (2008). Social Bonds and Posttraumatic Stress Disorder. *Annual Review of Psychology, 59*(1), 301-328. doi: doi:10.1146/annurev.psych.58.110405.085650

Cheng, S.-T., & Chan, A. C. M. (2004). The multidimensional scale of perceived social support: dimensionality and age and gender differences in adolescents.

Personality and Individual Differences, *37*(7), 1359-1369. doi: 10.1016/j.paid.2004.01.006

Cheng, Y., Chou, K. H., Decety, J., Chen, I. Y., Hung, D., Tzeng, O. J. L., & Lin, C. P. (2009). Sex differences in the neuroanatomy of human mirror-neuron system: A voxel-based morphometric investigation. *Neuroscience*, *158*(2), 713-720. doi: 10.1016/j.neuroscience.2008.10.026

Cheng, Y., Lee, P.-L., Yang, C.-Y., Lin, C.-P., Hung, D., & Decety, J. (2008). Gender Differences in the Mu Rhythm of the Human Mirror-Neuron System. *PLoS ONE, 3*(5), e2113. doi: 10.1371/journal.pone.0002113

Chilcoat, H. D., & Breslau, N. (1998). Investigations of causal pathways between PTSD and drug use disorders. *Addict Behav, 23*(6), 827-840.

Chou, K.-L. (2000). Assessing Chinese adolescents' social support: the multidimensional scale of perceived social support. *Personality and Individual Differences*, *28*(2), 299-307. doi: 10.1016/s0191-8869(99)00098-7

Christopher, M. (2004). A broader view of trauma: A biopsychosocial-evolutionary view of the role of the traumatic stress response in the emergence of pathology and/or growth. *Clinical Psychology Review*, *24*(1), 75-98. doi: 10.1016/j.cpr.2003.12.003

Chung, H., & Breslau, N. (2008). The latent structure of post-traumatic stress disorder: tests of invariance by gender and trauma type. *Psychological Medicine*, *38*(04), 563-573. doi: doi:10.1017/S0033291707002589

Clapp, J. D., & Gayle Beck, J. (2009). Understanding the relationship between PTSD and social support: The role of negative network orientation. *Behaviour Research and Therapy, 47*(3), 237-244. doi: 10.1016/j.brat.2008.12.006

Clara, I. P., Cox, B. J., Enns, M. W., Murray, L. T., & Torgrudc, L. J. (2003). Confirmatory factor analysis of the Multidimensional Scale of Perceived Social Support in clinically distressed and student samples. *Journal of Personality Assessment, 81*(3), 265-270. doi: 10.1207/s15327752jpa8103_09

Classen, C. C., Palesh, O. G., & Aggarwal, R. (2005). Sexual Revictimization: A Review of the Empirical Literature. *Trauma, Violence, & Abuse, 6*(2), 103-129. doi: 10.1177/1524838005275087

Cloitre, M., Koenen, K. C., Gratz, K. L., & Jakupcak, M. (2002). Differential diagnosis of PTSD in women. In R. Kimerling, P. Ouimette & J. Wolfe (Eds.), *Gender and PTSD* (pp. 117-149). New York: The Guilford Press.

Cloitre, M., & Rosenberg, A. (2006). Sexual Revictimization: Risk Factors and Prevention. In V. M. Follette & J. I. Ruzek (Eds.), *Cognitive-behavioral therapies for trauma* (2nd ed., pp. 321-361). New York, NY: Guilford Press.

Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. v. d., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress, 22*(5), 399-408. doi: 10.1002/jts.20444

Cloitre, M., Tardiff, K., Marzuk, P. M., Leon, A. C., & Portera, L. (1996). Childhood abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress, 9*(3), 473-482. doi: 10.1007/bf02103659

Cloutier, S., Martin, S. L., & Poole, C. (2002). Sexual assault among North Carolina women: prevalence and health risk factors. *Journal of Epidemiology and Community Health, 56*(4), 265-271. doi: 10.1136/jech.56.4.265

Coan, J. A. (2010). Adult attachment and the brain. *Journal of Social and Personal Relationships, 27*(2), 210-217. doi: 10.1177/0265407509360900

Cohen, L. J., & Roth, S. (1987). The Psychological Aftermath of Rape: Long-Term Effects and Individual Differences in Recovery. *Journal of Social and Clinical Psychology, 5*(4), 525-534.

Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis: A theoretical analysis. In A. Baum, S. E. Taylor & J. E. Singer (Eds.), *Handbook of psychology and health* (1st ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychol Bull, 98*(2), 310-357.

Coker, A. L., Smith, P. H., Bethea, L., King, M. R., & McKeown, R. E. (2000). Physical health consequences of physical and psychological intimate partner violence. *Archives of Family Medicine, 9*(5), 451-457.

Coker, A. L., Smith, P. H., Thompson, M. P., McKeown, R. E., Bethea, L., & Davis, K. E. (2002). Social support protects against the negative effects of partner violence

on mental health. *Journal of women's health & gender-based medicine, 11*(5), 465-476.

Coker, A. L., Watkins, K. W., Smith, P. H., & Brandt, H. M. (2003). Social support reduces the impact of partner violence on health: application of structural equation models. *Preventive Medicine, 37*(3), 259-267.

Coker, A. L., Williams, C. M., Follingstad, D. R., & Jordan, C. E. (2011). Psychological, reproductive and maternal health, behavioral, and economic impact of intimate partner violence. In J. W. White, M. P. Koss & A. E. Kazdin (Eds.), *Violence against women and children, Vol 1: Mapping the terrain* (Vol. 1, pp. 265-284). Washington, DC: American Psychological Association.

Conklin, C. Z., Bradley, R., & Westen, D. (2006). Affect regulation in borderline personality disorder. *J Nerv Ment Dis, 194*(2), 69-77. doi: 10.1097/01.nmd.0000198138.41709.4f

Conty, L., N'Diaye, K., Tijus, C., & George, N. (2007). When eye creates the contact! ERP evidence for early dissociation between direct and averted gaze motion processing. *Neuropsychologia, 45*(13), 3024-3037. doi: 10.1016/j.neuropsychologia.2007.05.017

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., . . . van der Kolk, B. (2005). Complex Trauma in Children and Adolescents. *Psychiatric Annals, 35*(5), 390-398. doi: citeulike-article-id:6114955

Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology, 18*(1), 36.

Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic Events and Posttraumatic Stress in Childhood. *Arch Gen Psychiatry, 64*(5), 577-584. doi: 10.1001/archpsyc.64.5.577

Coplan, A., & Goldie, P. (2011). *Empathy: Philosophical and psychological perspectives*. New York: Oxford University Press.

Corso, P. S., Mercy, J. A., Simon, T. R., Finkelstein, E. A., & Miller, T. R. (2007). Medical Costs and Productivity Losses Due to Interpersonal and Self-Directed Violence in the United States. *American Journal of Preventive Medicine, 32*(6), 474-482.e472.

Council for Accreditation of Counseling and Related Educational Programs. (2009). 2009 Standards. Alexandria, VA Council for Accreditation of Counseling and Related Educational Programs.

Courtois, C. A. (2004). Complex Trauma, Complex Reactions: Assessment and Treatment. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 412-425. doi: 10.1037/0033-3204.41.4.412

Courtois, C. A., & Gold, S. N. (2009). The Need for Inclusion of Psychological Trauma in the Professional Curriculum: A Call to Action. *Psychological Trauma: Theory, Research, Practice, and Policy, 1*(1), 3-23. doi: 10.1037/a0015224

Cozolino, L. (2010). *The neuroscience of psychotherapy: Healing the social brain (2nd ed.)*. New York, NY US: W W Norton & Co.

Cukor, J., Wyka, K., Jayasinghe, N., & Difede, J. (2010). The nature and course of subthreshold PTSD. *J Anxiety Disord, 24*(8), 918-923. doi: 10.1016/j.janxdis.2010.06.017

Culbertson, K. A., Vik, P. W., & Kooiman, B. J. (2001). The impact of sexual assault, sexual assault perpetrator type, and location of sexual assault on ratings of perceived safety. *Violence Against Women, 7*(8), 858-875.

Dahlem, N. W., Zimet, G. D., & Walker, R. R. (1991). The Multidimensional Scale of Perceived Social Support: A confirmation study. *Journal of Clinical Psychology, 47*(6), 756-761. doi: 10.1002/1097-4679(199111)47:6<756::aid-jclp2270470605>3.0.co;2-l

Dalgleish, T., Dunn, B. D., & Mobbs, D. (2009). Affective Neuroscience: Past, Present, and Future. *Emotion Review, 1*(4), 355-368. doi: 10.1177/1754073909338307

Damasio, A. (2001). Fundamental feelings. [10.1038/35101669]. *Nature, 413*(6858), 781-781.

Damasio, A., Grabowski, T. J., Bechara, A., Damasio, H., Ponto, L. L. B., Parvizi, J., & Hichwa, R. D. (2000). Subbcortical and cortical brain activity during the feeling of self-generated emotions. *Nature Neuroscience, 3*(10), 1049-1056.

Dass-Brailsford, P., & Myrick, A. C. (2010). Psychological Trauma and Substance Abuse: The Need for an Integrated Approach. *Trauma, Violence, & Abuse, 11*(4), 202-213. doi: 10.1177/1524838010381252

Davidson, J. R., Book, S. W., Colket, J. T., Tupler, L. A., Roth, S., David, D., . . . Feldman, M. E. (1997). Assessment of a new self-rating scale for post-traumatic stress disorder. *Psychol Med, 27*(1), 153-160.

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*, 85.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113-126. doi: 10.1037/0022-3514.44.1.113

Davis, R., Brickman, E., & Baker, T. (1991). Supportive and unsupportive responses of others to rape victims: Effects on concurrent victim adjustment. *American Journal of Community Psychology, 19*(3), 443-451. doi: 10.1007/bf00938035

de Kloet, C. S., Vermetten, E., Geuze, E., Kavelaars, A., Heijnen, C. J., & Westenberg, H. G. (2006). Assessment of HPA-axis function in posttraumatic stress disorder: pharmacological and non-pharmacological challenge tests, a review. *J Psychiatr Res, 40*(6), 550-567. doi: 10.1016/j.jpsychires.2005.08.002

Decety, J. (2011). The neuroevolution of empathy. *Annals of the New York Academy of Sciences, 1231*(1), 35-45. doi: 10.1111/j.1749-6632.2011.06027.x

Decety, J., & Jackson, P. L. (2004). The Functional Architecture of Human Empathy. *Behavioral and Cognitive Neuroscience Reviews, 3*(2), 71-100. doi: 10.1177/1534582304267187

Decety, J., & Jackson, P. L. (2006). A Social-Neuroscience Perspective on Empathy. *Current Directions in Psychological Science, 15*(2), 54-58. doi: 10.1111/j.0963-7214.2006.00406.x

Decety, J., & Lamm, C. (2006). Human empathy through the lens of social neuroscience. *ScientificWorldJournal, 6*, 1146-1163. doi: 10.1100/tsw.2006.221

Devinsky, O., Morrell, M. J., & Vogt, B. A. (1995). Contributions of anterior cingulate cortex to behaviour. *Brain, 118*(1), 279-306. doi: 10.1093/brain/118.1.279

Dickerson, S. S., Gruenewald, T. L., & Kemeny, M. E. (2004). When the Social Self Is Threatened: Shame, Physiology, and Health. *Journal of Personality, 72*(6), 1191-1216.

Domes, G., Heinrichs, M., Michel, A., Berger, C., & Herpertz, S. C. (2007). Oxytocin Improves "Mind-Reading" in Humans. *Biological Psychiatry, 61*(6), 731-733. doi: 10.1016/j.biopsych.2006.07.015

Dunmore, E., Clark, D. M., & Ehlers, A. (2001). A prospective investigation of the role of cognitive factors in persistent posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy, 39*(9), 1063-1084. doi: 10.1016/s0005-7967(00)00088-7

Dutton, M. A. (1992). Assessment and treatment of post-traumatic stress disorder among battered women. In D. W. Foy (Ed.), *Treating PTSD: cognitive behavioral strategies* (pp. 69–97). New York: Guilford Press.

Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: theory and evidence. *Psychol Bull, 137*(1), 19-46. doi: 10.1037/a0021367

Dziobek, I., Rogers, K., Fleck, S., Bahnemann, M., Heekeren, H., Wolf, O., & Convit, A. (2008). Dissociation of Cognitive and Emotional Empathy in Adults with Asperger Syndrome Using the Multifaceted Empathy Test (MET). *Journal of Autism and Developmental Disorders, 38*(3), 464-473. doi: 10.1007/s10803-007-0486-x

Ebert, A., & Dyck, M. J. (2004). The experience of mental death: The core feature of complex posttraumatic stress disorder. *Clinical Psychology Review, 24*(6), 617-635. doi: 10.1016/j.cpr.2004.06.002

Edwards, L. M. (2004). Measuring Perceived Social Support in Mexican American Youth: Psychometric Properties of the Multidimensional Scale of Perceived Social Support. *Hispanic Journal of Behavioral Sciences, 26*(2), 187-194. doi: 10.1177/0739986304264374

Ehlers, A., Mayou, R. A., & Bryant, B. (1998). Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *J Abnorm Psychol, 107*(3), 508-519.

Eisenberg, N., & Fabes, R. A. (1990). Empathy: Conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion, 14*(2), 131-149. doi: 10.1007/bf00991640

Eisenberg, N., Fabes, R. A., Murphy, B., Karbon, M., Maszk, P., Smith, M., . . . Suh, K. (1994). The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology, 66*(4), 776-797. doi: 10.1037/0022-3514.66.4.776

Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin, 94*(1), 100-131. doi: 10.1037/0033-2909.94.1.100

Eisenberg, N., Wentzel, M., & Harris, J. D. (1998). The role of emotionality and regulation in empathy-related responding. *School Psychology Review, 27*(4), 506-521.

Eker, D., Arkar, H., & Yaldiz, H. (2000). Generality of support sources and psychometric properties of a scale of perceived social support in Turkey. *Social Psychiatry And Psychiatric Epidemiology, 35*(5), 228-233. doi: 10.1007/s001270050232

Ellsberg, M., Jansen, H. A. F. M., Heise, L., Watts, C. H., & Garcia-Moreno, C. (2008). Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. *The Lancet, 371*(9619), 1165-1172.

Elmer, E. (1960). Failure to thrive. Role of the mother. *Pediatrics, 25*, 717-725.

Etkin, A., Egner, T., Peraza, D. M., Kandel, E. R., & Hirsch, J. (2006). Resolving emotional conflict: a role for the rostral anterior cingulate cortex in modulating activity in the amygdala. *Neuron, 51*(6), 871-882.

Faergemann, C., Lauritsen, J. M., Brink, O., & Mortensen, P. B. (2010). Do repeat victims of interpersonal violence have different demographic and socioeconomic

characters from non-repeat victims of interpersonal violence and the general population? A population-based case-control study. *Scandinavian Journal of Public Health, 38*(5), 524-532. doi: 10.1177/1403494810370234

Faul, F. (2010). G*Power (Version 3.1.3). Kiel, Germany.

Feeny, N. C., Zoellner, L. A., Fitzgibbons, L. A., & Foa, E. B. (2000). Exploring the roles of emotional numbing, depression, and dissociation in PTSD. *Journal of Traumatic Stress, 13*(3), 489-498. doi: 10.1023/a:1007789409330

Feiring, C., Rosenthal, S., & Taska, L. (2000). Stigmatization and the Development of Friendship and Romantic Relationships in Adolescent Victims of Sexual Abuse. *Child Maltreatment, 5*(4), 311-322. doi: 10.1177/1077559500005004003

Felmingham, K., Williams, L. M., Kemp, A. H., Liddell, B., Falconer, E., Peduto, A., & Bryant, R. (2010). Neural responses to masked fear faces: Sex differences and trauma exposure in posttraumatic stress disorder. *Journal of Abnormal Psychology, 119*(1), 241-247. doi: 10.1037/a0017551

Felmingham, K., Williams, L. M., Whitford, T. J., Falconer, E., Kemp, A. H., Peduto, A., & Bryant, R. A. (2009). Duration of posttraumatic stress disorder predicts hippocampal grey matter loss. *NeuroReport, 20*(16), 1402-1406.

Fishbane, M. D. (2007). Wired to connect: neuroscience, relationships, and therapy. *Family Process, 46*(3), 395-412.

Foa, E. B., Keane, T., Friedman, M., & Cohen, J. (2009). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.). New York: Guildford Press.

Foa, E. B., Riggs, D. S., & Gershuny, B. S. (1995). Arousal, numbing, and intrusion: symptom structure of PTSD following assault. *The American Journal of Psychiatry, 152*(1), 116-120.

Foa, E. B., & Rothbaum, B. O. (1998). *Treating the trauma of rape: Cognitive-behavioral therapy for PTSD.* New York, NY: Guilford.

Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). Poly-Victimization and Risk of Posttraumatic, Depressive, and Substance Use Disorders and Involvement in Delinquency in a National Sample of Adolescents. *Journal of Adolescent Health, 46*(6), 545-552. doi: 10.1016/j.jadohealth.2009.11.212

Ford, J. D., Stockton, P., Kaltman, S., & Green, B. L. (2006). Disorders of Extreme Stress (DESNOS) Symptoms Are Associated With Type and Severity of Interpersonal Trauma Exposure in a Sample of Healthy Young Women. *Journal of Interpersonal Violence, 21*(11), 1399-1416. doi: 10.1177/0886260506292992

Forstmeier, S., Kuwert, P., Spitzer, C., Freyberger, H. J., & Maercker, A. (2009). Posttraumatic Growth, Social Acknowledgment as Survivors, and Sense of Coherence in Former German Child Soldiers of World War II. *The American journal of geriatric psychiatry : official journal of the American Association for Geriatric Psychiatry., 17*(12), 1030-1039.

Fosha, D., Siegel, D. J., & Solomon, M. F. (2009). *The healing power of emotion: affective neuroscience, development, and clinical practice*. New York: W. W. Norton.

Foy, D. W., Madvig, B. T., Pynoos, R. S., & Camilleri, A. J. (1996). Etiologic factors in the development of posttraumatic stress disorder in children and adolescents. *Journal of School Psychology, 34*(2), 133-145. doi: 10.1016/0022-4405(96)00003-9

Freedy, J. R., Steenkamp, M. M., Magruder, K. M., Yeager, D. E., Zoller, J. S., Hueston, W. J., & Carek, P. J. (2010). Post-traumatic stress disorder screening test performance in civilian primary care. *Family Practice, 27*(6), 615-624. doi: 10.1093/fampra/cmq049

Freeman, T. W., Hart, J., Kimbrell, T., & Ross, E. D. (2009). Comprehension of affective prosody in veterans with chronic posttraumatic stress disorder. *J Neuropsychiatry Clin Neurosci, 21*(1), 52-58. doi: 10.1176/appi.neuropsych.21.1.52

Freud, S. (1962). The Aetiology of Hysteria. In J. Strachey (Ed.), *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume III (1893-1899): Early Psycho-Analytic Publications* (pp. 187-221). London: Hogarth Press.

Frewen, P. A., Dozois, D. J., Neufeld, R. W., Lane, R. D., Densmore, M., Stevens, T. K., & Lanius, R. A. (2012). Emotional numbing in posttraumatic stress disorder: a functional magnetic resonance imaging study. *J Clin Psychiatry, 73*(4), 431-436. doi: 10.4088/JCP.10m06477

Frewen, P. A., Dozois, D. J. A., Neufeld, R. W. J., Densmore, M., Stevens, T. K., & Lanius, R. A. (2010). Social emotions and emotional valence during imagery in women with PTSD: Affective and neural correlates. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(2), 145-157. doi: 10.1037/a0019154

Frewen, P. A., Dozois, D. J. A., Neufeld, R. W. J., & Lanius, R. A. (2011). Disturbances of emotional awareness and expression in posttraumatic stress disorder: Meta-mood, emotion regulation, mindfulness, and interference of emotional expressiveness. *Psychological Trauma: Theory, Research, Practice, and Policy*. doi: 10.1037/a0023114

Frewen, P. A., Lane, R. D., Neufeld, R. W. J., Densmore, M., Stevens, T., & Lanius, R. (2008). Neural Correlates of Levels of Emotional Awareness During Trauma Script-Imagery in Posttraumatic Stress Disorder. *Psychosomatic Medicine, 70*(1), 27-31. doi: 10.1097/PSY.0b013e31815f66d4

Freyd, J. J. (1994). Betrayal trauma: Traumatic amnesia as an adaptive response to childhood abuse. *Ethics & Behavior, 4*(4), 307-329.

Friedman, M. J., Resick, P. A., Bryant, R. A., & Brewin, C. R. (2011). Considering PTSD for DSM-5. *Depression and anxiety, 28*(9), 750-769. doi: 10.1002/da.20767

Frijda, N. H. (2000). The psychologists' point of view. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (pp. 59-74). New York: Guilford Press.

Frueh, B. C., Cousins, V. C., Hiers, T. G., Cavenaugh, S. D., Cusack, K. J., & Santos, A. B. (2002). The Need for Trauma Assessment and Related Clinical Services in a State-Funded Mental Health System. *Community Mental Health Journal, 38*(4), 351-356. doi: 10.1023/a:1015909611028

Fuchs, T. (2004). Neurobiology and psychotherapy: An emerging dialogue. *Current Opinion in Psychiatry, 17*(6), 479-485. doi: 10.1097/00001504-200411000-00010

Fydrich, T., Geyer, M., Hessel, A., Sommer, G., & Braehler, E. (1999). Social support questionnaire (F-SozU): Norms of a representative sample. *DIAGNOSTICA-GOTTINGEN-, 45*, 212-216.

Gallese, V. (2001). The shared manifold hypothesis. From mirror neurons to empathy. *Journal of Consciousness Studies, 8*(5-7), 33-50.

Gallese, V., Eagle, M. N., & Migone, P. (2007). Intentional Attunement: Mirror Neurons and the Neural Underpinnings of Interpersonal Relations. *Journal of the American Psychoanalytic Association, 55*(1), 131-175. doi: 10.1177/00030651070550010601

Garfinkel, S. N., & Liberzon, I. (2009). Neurobiology of PTSD: A review of neuroimaging findings. *Psychiatric Annals, 39*(6), 370-372, 376-381. doi: 10.3928/00485713-20090527-01

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.

Gerbarg, P. L., & Brown, R. P. (2005). Yoga: A breath of relief for Hurricane Katrina refugees. *Curr Psychiatr, 4*, 55-67.

Gere, S., Dass-Brailsford, P., & Hoshmand, L. T. (2009). Issues in Integrating Trauma Curriculum into a Graduate Counseling Psychology Program. *Asian Journal of Counselling, 16*(1), 67–88.

Giuliani, N. R., Drabant, E. M., Bhatnagar, R., & Gross, J. J. (2011). Emotion regulation and brain plasticity: Expressive suppression use predicts anterior insula volume. *NeuroImage, 58*(1), 10-15. doi: 10.1016/j.neuroimage.2011.06.028

Glover, H. (1992). Emotional numbing: A possible endorphin-mediated phenomenon associated with post-traumatic stress disorders and other allied psychopathologic states. *Journal of Traumatic Stress, 5*(4), 643-675. doi: 10.1002/jts.2490050413

Gold, S. N. (2004). The Relevance of Trauma to General Clinical Practice. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 363-373. doi: 10.1037/0033-3204.41.4.363

Golding, J. M. (1999a). Intimate Partner Violence as a Risk Factor for Mental Disorders: A Meta-Analysis. *Journal of Family Violence, 14*(2), 99-132. doi: 10.1023/a:1022079418229

Golding, J. M. (1999b). Sexual-Assault History and Long-Term Physical Health Problems: Evidence From Clinical and Population Epidemiology. *Current Directions in Psychological Science, 8*(6), 191-194. doi: 10.1111/1467-8721.00045

Goodman, L. A., Corcoran, C., Turner, K., Yuan, N., & Green, B. L. (1998). Assessing Traumatic Event Exposure: General Issues and Preliminary Findings for the Stressful Life Events Screening Questionnaire. *Journal of Traumatic Stress, 11*(3), 521-542. doi: 10.1023/a:1024456713321

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*(1), 41-54. doi: 10.1023/b:joba.0000007455.08539.94

Green, B. L., Chung, J. Y., Daroowalla, A., Kaltman, S., & DeBenedictis, C. (2006). Ealuating the Cultural Validity of the Stressful Life Events Screening Questionnaire. *Violence Against Women, 12*(12), 1191-1213. doi: 10.1177/1077801206294534

Grigsby, J., & Stevens, D. (2002). Memory, Neurodynamics, and Human Relationships. [Article]. *Psychiatry: Interpersonal & Biological Processes, 65*(1), 13-34. doi: 10.1521/psyc.65.1.13.19762

Grippo, A. J., Gerena, D., Huang, J., Kumar, N., Shah, M., Ughreja, R., & Sue Carter, C. (2007). Social isolation induces behavioral and neuroendocrine disturbances relevant to depression in female and male prairie voles. *Psychoneuroendocrinology, 32*(8–10), 966-980. doi: http://dx.doi.org/10.1016/j.psyneuen.2007.07.004

Grisso, J. A., Wishner, A. R., Schwarz, D. F., Weene, B. A., Holmes, J. H., & Sutton, R. L. (1991). A Population-based Study of Injuries in Inner-City Women. *American Journal of Epidemiology, 134*(1), 59-68.

Gros, D. F., Price, M., Magruder, K. M., & Frueh, B. C. (2012). Symptom overlap in posttraumatic stress disorder and major depression. *Psychiatry Research, 196*(2), 267-270.

Grynberg, D., Luminet, O., Corneille, O., Grèzes, J., & Berthoz, S. (2010). Alexithymia in the interpersonal domain: A general deficit of empathy? *Personality and Individual Differences, 49*(8), 845-850. doi: 10.1016/j.paid.2010.07.013

Gu, X., Gao, Z., Wang, X., Liu, X., Knight, R. T., Hof, P. R., & Fan, J. (2012). Anterior insular cortex is necessary for empathetic pain perception. *Brain, 135*(9), 2726-2735. doi: 10.1093/brain/aws199

Hames, J. L., Hagan, C. R., & Joiner, T. E. (2013). Interpersonal Processes in Depression. *Annual Review of Clinical Psychology, 9*(1), 355-377. doi: doi:10.1146/annurev-clinpsy-050212-185553

Hamner, M. B., Lorberbaum, J. P., & George, M. S. (1999). Potential role of the anterior cingulate cortex in PTSD: Review and hypothesis. *Depression and anxiety, 9*(1), 1-14. doi: 10.1002/(sici)1520-6394(1999)9:1<1::aid-da1>3.0.co;2-4

Hanson, R. F., Self-Brown, S., Fricker-Elhai, A. E., Kilpatrick, D. G., Saunders, B. E., & Resnick, H. S. (2006). The Relations Between Family Environment and Violence Exposure Among Youth: Findings From the National Survey of Adolescents. *Child Maltreatment, 11*(1), 3-15. doi: 10.1177/1077559505279295

Hariri, A. R., Bookheimer, S. Y., & Mazziotta, J. C. (2000). Modulating emotional responses: effects of a neocortical network on the limbic system. *NeuroReport, 11*(1), 43-48.

Harlow, H. F., Dodsworth, R. O., & Harlow, M. K. (1965). Total social isolation in monkeys. *Proceedings of the National Academy of Sciences of the United States of America, 54*(1), 90.

Harris, H. N., & Valentiner, D. P. (2002). World assumptions, sexual assault, depression, and fearful attitudes toward relationships. *Journal of Interpersonal Violence, 17*(3), 286-305. doi: 10.1177/0886260502017003004

Harvey, A. G., & Bryant, R. A. (1998). The relationship between acute stress disorder and posttraumatic stress disorder: a prospective evaluation of motor vehicle accident survivors. *J Consult Clin Psychol, 66*(3), 507-512.

Harvey, M. R. (2007). Towards an Ecological Understanding of Resilience in Trauma Survivors. *Journal of Aggression, Maltreatment & Trauma, 14*(1-2), 9-32. doi: 10.1300/J146v14n01_02

Hawk, L. W., Dougall, A. L., Ursano, R. J., & Baum, A. (2000). Urinary Catecholamines and Cortisol in Recent-Onset Posttraumatic Stress Disorder After Motor Vehicle Accidents. *Psychosomatic Medicine, 62*(3), 423-434.

Hayden, B. Y., & Platt, M. L. (2010). Neurons in Anterior Cingulate Cortex Multiplex Information about Reward and Action. *The Journal of Neuroscience, 30*(9), 3339-3346. doi: 10.1523/jneurosci.4874-09.2010

Hayward, C., & Sanborn, K. (2002). Puberty and the emergence of gender differences in psychopathology. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine, 30*(4), 49-58.

Heim, C., & Nemeroff, C. B. (2009). Neurobiology of posttraumatic stress disorder. *CNS Spectr, 14*(1 Suppl 1), 13-24.

Heir, T., Piatigorsky, A., & Weisæth, L. (2010). Posttraumatic stress symptom clusters associations with psychopathology and functional impairment. *Journal of Anxiety Disorders, 24*(8), 936-940. doi: 10.1016/j.janxdis.2010.06.020

Herman, J. L. (1992a). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress, 5*(3), 377-391. doi: 10.1002/jts.2490050305

Herman, J. L. (1992b). *Trauma and Recovery: The aftermath of violence from domestic abuse to political terror*. New York: Basic Books.

Hetzel-Riggin, M. D. (2010). Peritraumatic dissociation and PTSD effects on physiological response patterns in sexual assault victims. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(3), 192-200. doi: 10.1037/a0019892

Hien, D. A., Jiang, H., Campbell, A. N. C., Hu, M. C., Miele, G. M., Cohen, L. R., . . . Robinson, J. (2010). Do treatment improvements in PTSD severity affect substance use outcomes? A secondary analysis from a randomized clinical trial in NIDA's Clinical Trials Network. *The American Journal of Psychiatry, 167*(1), 95.

Hobfoll, S. E., & Lilly, R. S. (1993). Resource conservation as a strategy for community psychology. *Journal of Community Psychology, 21*(2), 128-148. doi: 10.1002/1520-6629(199304)21:2<128::aid-jcop2290210206>3.0.co;2-5

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science, 6*(6), 537-559.

Honig, R. G., Grace, M. C., Lindy, J. D., Newman, C. J., & Titchener, J. L. (1999). Assessing long-term effects of trauma: diagnosing symptoms of avoidance and numbing. *Am J Psychiatry, 156*(3), 483-485.

Hoshmand, L. (2007). Cultural–Ecological Perspectives on the Understanding and Assessment of Trauma. In J. Wilson & C. Tang (Eds.), *Cross-Cultural Assessment of Psychological Trauma and PTSD* (pp. 31-50): Springer US.

Hurlemann, R., Patin, A., Onur, O. A., Cohen, M. X., Baumgartner, T., Metzler, S., . . . Kendrick, K. M. (2010). Oxytocin Enhances Amygdala-Dependent, Socially Reinforced Learning and Emotional Empathy in Humans. *The Journal of Neuroscience, 30*(14), 4999-5007. doi: 10.1523/jneurosci.5538-09.2010

Iacoboni, M., & Dapretto, M. (2006). The mirror neuron system and the consequences of its dysfunction. *Nature Neuroscience, 7*, 942-951. doi: 10.1038/nrn2024

Iacoboni, M., & Mazziotta, J. C. (2007). Mirror neuron system: basic findings and clinical applications. *Annals of Neurology, 62*(3), 213-218. doi: 10.1002/ana.21198

Inslicht, S. S., Marmar, C. R., Neylan, T. C., Metzler, T. J., Hart, S. L., Otte, C., . . . Baum, A. (2006). Increased Cortisol in Women With Intimate Partner Violence-Related Posttraumatic Stress Disorder. *Annals of the New York Academy of Sciences, 1071*(1), 428-429. doi: 10.1196/annals.1364.035

Irwin, H. J. (1996). Traumatic childhood events, perceived availability of emotional support, and the development of dissociative tendencies. *Child Abuse Negl, 20*(8), 701-707.

Irwin, M., Artin, K. H., & Oxman, M. N. (1999). Screening for Depression in the Older Adult: Criterion Validity of the 10-Item Center for Epidemiological Studies

Depression Scale (CES-D). *Arch Intern Med, 159*(15), 1701-1704. doi: 10.1001/archinte.159.15.1701

Ivanovski, B., & Malhi, G. S. (2007). The psychological and neurophysiological concomitants of mindfulness forms of meditation. *Acta neuropsychiatrica, 19*(2), 76-91.

Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition, 7*(2), 113-136. doi: 10.1521/soco.1989.7.2.113

Jaycox, L. H., & Foa, E. B. (1996). Obstacles in Implementing Exposure Therapy for PTSD: Case Discussions and Practical Solutions. *Clinical Psychology & Psychotherapy, 3*(3), 176-184. doi: 10.1002/(sici)1099-0879(199609)3:3<176::aid-cpp100>3.0.co;2-1

Jaycox, L. H., Foa, E. B., & Morral, A. R. (1998). Influence of emotional engagement and habituation on exposure therapy for PTSD. *J Consult Clin Psychol, 66*(1), 185-192.

Johnson, D. M., Palmieri, P. A., Jackson, A. P., & Hobfoll, S. E. (2007). Emotional numbing weakens abused inner-city women's resiliency resources. *Journal of Traumatic Stress, 20*(2), 197-206. doi: 10.1002/jts.20201

Joormann, J., & Siemer, M. (2011). Affective Processing and Emotion Regulation in Dysphoria and Depression: Cognitive Biases and Deficits in Cognitive Control. *Social and Personality Psychology Compass, 5*(1), 13-28. doi: 10.1111/j.1751-9004.2010.00335.x

Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., & Weiss, D. S. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 60*(6), 916.

Jordan, J. V. (1997). Relational development: Therapeutic implications of empathy and shame. In J. V. Jordan (Ed.), *Women's growth in diversity* (pp. 138-161). New York: Guilford Press.

Karl, A., Schaefer, M., Malta, L. S., Dörfel, D., Rohleder, N., & Werner, A. (2006). A meta-analysis of structural brain abnormalities in PTSD. *Neuroscience and Biobehavioral Reviews, 30*(7), 1004.

Kashdan, T. B., Elhai, J. D., & Frueh, B. C. (2006). Anhedonia and emotional numbing in combat veterans with PTSD. *Behaviour Research and Therapy, 44*(3), 457-467. doi: 10.1016/j.brat.2005.03.001

Kazarian, S. S., & McCabe, S. B. (1991). Dimensions of social support in the MSPSS: Factorial structure, reliability, and theoretical implications. *Journal of Community Psychology, 19*(2), 150-160. doi: 10.1002/1520-6629(199104)19:2<150::aid-jcop2290190206>3.0.co;2-j

Kazdin, A. E. (2011). Conceptualizing the challenge of reducing interpersonal violence. *Psychology of Violence, 1*(3), 166-187. doi: 10.1037/a0022990

Keane, T. M., Marshall, A. D., & Taft, C. T. (2006). Posttraumatic stress disorder: etiology, epidemiology, and treatment outcome. *Annu Rev Clin Psychol, 2*, 161-197. doi: 10.1146/annurev.clinpsy.2.022305.095305

Keller, S. M., Zoellner, L. A., & Feeny, N. C. (2010). Understanding factors associated with early therapeutic alliance in PTSD treatment: Adherence, childhood sexual abuse history, and social support. *Journal of Consulting and Clinical Psychology, 78*(6), 974.

Kelley, L. P., Weathers, F. W., McDevitt-Murphy, M. E., Eakin, D. E., & Flood, A. M. (2009). A comparison of PTSD symptom patterns in three types of civilian trauma. *Journal of Traumatic Stress, 22*(3), 227-235. doi: 10.1002/jts.20406

Kelly, J. B., & Johnson, M. P. (2008). Differentiation among types of intimate partner violence: Research update and implications for interventions. *Family Court Review, 46*(3), 476-499.

Kendler, K. S., Myers, J., & Prescott, C. A. (2005). Sex differences in the relationship between social support and risk for major depression: a longitudinal study of opposite-sex twin pairs. *American Journal of Psychiatry, 162*(2), 250-256.

Kessler, R. C. (2000). Posttraumatic stress disorder: the burden to the individual and to society. *J Clin Psychiatry, 61 Suppl 5*, 4-12; discussion 13-14.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelsen, C. B., Hughes, M., Eshleman, S., . . . Fochtmann, L. J. (2002). National Comorbidity Survey. *Trauma exposure and posttraumatic stress disorder in psychosis: Findings from a first-admission cohort, 70*, 246-251.

Kessler, R. C., & McLeod, J. D. (1985). Social support and mental health in community samples. In S. Cohen & S. L. Syme (Eds.), *Social Support and Health*. New York: Academic.

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry, 52*(12), 1048-1060.

King, D. W., Leskin, G. A., King, L. A., & Weathers, F. W. (1998). Confirmatory factor analysis of the clinician-administered PTSD Scale: Evidence for the dimensionality of posttraumatic stress disorder. *Psychological Assessment, 10*(2), 90-96. doi: 10.1037/1040-3590.10.2.90

King, D. W., Taft, C., King, L. A., Hammond, C., & Stone, E. R. (2006). Directionality of the association between social support and posttraumatic stress disorder: A longitudinal investigation. *Journal of Applied Social Psychology, 36*(12), 2980–2992.

Klaassens, E. R., Giltay, E. J., Cuijpers, P., van Veen, T., & Zitman, F. G. (2012). Adulthood trauma and HPA-axis functioning in healthy subjects and PTSD patients: a meta-analysis. *Psychoneuroendocrinology, 37*(3), 317-331. doi: 10.1016/j.psyneuen.2011.07.003

Kolassa, I.-T., Ertl, V., Eckart, C., Kolassa, S., Onyut, L. P., & Elbert, T. (2010). Spontaneous remission from PTSD depends on the number of traumatic event types experienced. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(3), 169-174. doi: 10.1037/a0019362

Koss, M. P. (1993). Detecting the Scope of Rape: A Review of Prevalence Research Methods. *Journal of Interpersonal Violence, 8*(2), 198-222. doi: 10.1177/088626093008002004

Kraus, L., Baumeister, S. E., Pabst, A., & Orth, B. (2009). Association of Average Daily Alcohol Consumption, Binge Drinking and Alcohol-Related Social Problems: Results from the German Epidemiological Surveys of Substance Abuse. *Alcohol and Alcoholism, 44*(3), 314-320. doi: 10.1093/alcalc/agn110

Krause, E. D., Kaltman, S., Goodman, L., & Dutton, M. A. (2006). Role of distinct PTSD symptoms in intimate partner reabuse: A prospective study. *Journal of Traumatic Stress, 19*(4), 507-516. doi: 10.1002/jts.20136

Kubany, E. S., Leisen, M. B., Kaplan, A. S., & Kelly, M. P. (2000). Validation of a brief measure of posttraumatic stress disorder: the Distressing Event Questionnaire (DEQ). *Psychol Assess, 12*(2), 197-209.

Kuhn, E., Blanchard, E. B., & Hickling, E. J. (2003). Posttraumatic stress disorder and psychosocial functioning within two samples of MVA survivors. *Behaviour Research and Therapy, 41*(9), 1105-1112. doi: http://dx.doi.org/10.1016/S0005-7967(03)00071-8

Laffaye, C., Cavella, S., Drescher, K., & Rosen, C. (2008). Relationships Among PTSD Symptoms, Social Support, and Support Source in Veterans With Chronic PTSD. *Journal of Traumatic Stress, 21*(4), 394–401.

Lamm, C., Batson, C. D., & Decety, J. (2007). The Neural Substrate of Human Empathy: Effects of Perspective-taking and Cognitive Appraisal. *Journal of Cognitive Neuroscience, 19*(1), 42-58. doi: 10.1162/jocn.2007.19.1.42

Lane, R. D., Reiman, E. M., Axelrod, B., Yun, L.-S., Holmes, A., & Schwartz, G. E. (1998). Neural correlates of levels of emotional awareness: Evidence of an

interaction between emotion and attention in the anterior cingulate cortex. *Journal of Cognitive Neuroscience, 10*(4), 525-535.

Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: a conceptual analysis. *Journal of Advanced Nursing, 25*(1), 95-100. doi: 10.1046/j.1365-2648.1997.1997025095.x

Lanius, R. A., Bluhm, R. L., & Frewen, P. A. (2011). How understanding the neurobiology of complex post-traumatic stress disorder can inform clinical practice: a social cognitive and affective neuroscience approach. *Acta Psychiatrica Scandinavica, 124*(5), 331-348. doi: 10.1111/j.1600-0447.2011.01755.x

Laporte, L., Jiang, D., Pepler, D. J., & Chamberland, C. (2011). The relationship between adolescents' experience of family violence and dating violence. *Youth & Society, 43*(1), 3-27. doi: 10.1177/0044118x09336631

Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: reliability and validity of the Empathy Quotient. *Psychological Medicine, 34*(05), 911-920. doi: doi:10.1017/S0033291703001624

Lawrence, E. J., Shaw, P., Baker, D., Patel, M., Sierra-Siegert, M., Medford, N., & David, A. S. (2007). Empathy and enduring depersonalization: the role of self-related processes. *Social Neuroscience, 2*(3-4), 292-306.

Lecea, L. d., Jones, B. E., Boutrel, B., Borgland, S. L., Nishino, S., Bubser, M., & DiLeone, R. (2006). Addiction and Arousal: Alternative Roles of Hypothalamic

Peptides. *The Journal of Neuroscience, 26*(41), 10372-10375. doi: 10.1523/jneurosci.3118-06.2006

LeDoux, J. E. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York, NY US: Simon & Schuster.

Lee, D. A., Scragg, P., & Turner, S. (2001). The role of shame and guilt in traumatic events: A clinical model of shame-based and guilt-based PTSD. *British Journal of Medical Psychology, 74*(4), 451-466.

Leiner, A. S., Kearns, M. C., Jackson, J. L., Astin, M. C., & Rothbaum, B. O. (2012). Avoidant coping and treatment outcome in rape-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 80*(2), 317-321. doi: 10.1037/a0026814

Leith, K. P., & Baumeister, R. F. (1998). Empathy, Shame, Guilt, and Narratives of Interpersonal Conflicts: Guilt-Prone People Are Better at Perspective Taking. *Journal of Personality, 66*(1), 1-37. doi: 10.1111/1467-6494.00001

Lensvelt-Mulders, G., van Der Hart, O., van Ochten, J. M., van Son, M. J. M., Steele, K., & Breeman, L. (2008). Relations among peritraumatic dissociation and posttraumatic stress: A meta-analysis. *Clinical Psychology Review, 28*(7), 1138-1151. doi: 10.1016/j.cpr.2008.03.006

Levine, P. A. (1997). *Waking the tiger: Healing trauma : the innate capacity to transform overwhelming experiences*. Berkeley: North Atlantic Books

Levitt, J. T., & Cloitre, M. (2005). A clinician's guide to STAIR/MPE: Treatment for PTSD related to childhood abuse. *Cognitive and Behavioral Practice, 12*(1), 40-52. doi: 10.1016/s1077-7229(05)80038-0

Liberzon, I., Abelson, J. L., Flagel, S. B., Raz, J., & Young, E. A. (1999). Neuroendocrine and Psychophysiologic Responses in PTSD: A Symptom Provocation Study. *Neuropsychopharmacology, 21*(1), 40-50.

Lilly, M. M., & Valdez, C. E. (2012). Interpersonal trauma and PTSD: The roles of gender and a lifespan perspective in predicting risk. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(1), 140-144. doi: 10.1037/a0022947

Lim, M. M., & Young, L. J. (2006). Neuropeptide regulation of affiliative behavior and social bonding in animals. *Hormones and Behavior, 50*, 506-517.

Lipps, T. (1903). Empathy, Inward Imitation, and Sense Feelings. In E. F. Carritt (Ed.), *Philosophies of Beauty: From Socrates to Robert Bridges being teh Sources of Aesthetic Theory* (pp. 252-256). Oxford: Clarendon Press.

Littleton, H., & Breitkopf, C. R. (2006). Coping with the experience of rape. *Psychology of Women Quarterly, 30*(1), 106-116.

Litz, B. T., & Gray, M. J. (2002). Emotional numbing in posttraumatic stress disorder: current and future research directions. *Australian & New Zealand Journal of Psychiatry, 36*(2), 198-204.

Litz, B. T., & Keane, T. M. (1989). Information processing in anxiety disorders: Application to the understanding of post-traumatic stress disorder. *Clinical Psychology Review, 9*(2), 243-257. doi: 10.1016/0272-7358(89)90030-5

Litz, B. T., Orsillo, S. M., Kaloupek, D., & Weathers, F. (2000). Emotional Processing in Posttraumatic Stress Disorder. *Journal of Abnormal Psychology, 109*(1), 26-39.

Litz, B. T., Schlenger, W. E., Weathers, F. W., Caddell, J. M., Fairbank, J. A., & LaVange, L. M. (1997). Predictors of Emotional Numbing in Posttraumatic Stress Disorder. *Journal of Traumatic Stress, 10*(4), 607-618. doi: 10.1023/a:1024845819585

Luce, H., Schrager, S., & Gilchrist, V. (2010). Sexual assault of women. *American Family Physician, 81*(4), 489-495.

Lunney, C. A., & Schnurr, P. P. (2007). Domains of quality of life and symptoms in male veterans treated for posttraumatic stress disorder. *J Trauma Stress, 20*(6), 955-964. doi: 10.1002/jts.20269

MacDonald, C., Chamberlain, K., Long, N., & Flett, R. (1999). Posttraumatic stress disorder and interpersonal functioning in Vietnam War veterans: a mediational model. *Journal of Traumatic Stress, 12*(4), 701-707.

Maercker, A., & Müller, J. (2004). Social acknowledgment as a victim or survivor: A scale to measure a recovery factor of PTSD. *Journal of Traumatic Stress, 17*(4), 345-351. doi: 10.1023/B:JOTS.0000038484.15488.3d

Maercker, A., Povilonyte, M., Lianova, R., & Pöhlmann, K. (2009). Is Acknowledgment of Trauma a Protective Factor? *European Psychologist, 14*(3), 249-254. doi: 10.1027/1016-9040.14.3.249

Magruder, K. M., Frueh, B. C., Knapp, R. G., Johnson, M. R., Vaughan, J. A., Carson, T. C., . . . Hebert, R. (2004). PTSD symptoms, demographic characteristics, and

functional status among veterans treated in VA primary care clinics. *Journal of Traumatic Stress, 17*(4), 293-301. doi: 10.1023/B:JOTS.0000038477.47249.c8

Malta, L. S., Levitt, J. T., Martin, A., Davis, L., & Cloitre, M. (2009). Correlates of functional impairment in treatment-seeking survivors of mass terrorism. *Behavior Therapy, 40*(1), 39-49.

Malta, L. S., & Stratton, S. S. (2012). Allostasis: The Emperor of All (Trauma-Related) Maladies. *Clinical Psychology: Science and Practice, 19*(3), 241–259.

Marsella, A. J., & Christopher, M. A. (2004). Ethnocultural considerations in disasters: an overview of research, issues, and directions. *Psychiatric Clinics of North America, 27*(3), 521-539. doi: 10.1016/j.psc.2004.03.011

Marshall, G. N., & Schell, T. L. (2002). Reappraising the link between peritraumatic dissociation and PTSD symptom severity: Evidence from a longitudinal study of community violence survivors. *Journal of Abnormal Psychology, 111*(4), 626-636. doi: 10.1037/0021-843x.111.4.626

Martinotti, G., Nicola, M. D., Tedeschi, D., Cundari, S., & Janiri, L. (2009). Empathy Ability Is Impaired in Alcohol-Dependent Patients. *The American Journal on Addictions, 18*(2), 157-161. doi: 10.1080/10550490802544391

Mason, J. W., Wang, S., Yehuda, R., Riney, S., Charney, D. S., & Southwick, S. M. (2001). Psychogenic Lowering of Urinary Cortisol Levels Linked to Increased Emotional Numbing and a Shame-Depressive Syndrome in Combat-Related Posttraumatic Stress Disorder. *Psychosomatic Medicine, 63*(3), 387-401.

Masten, C. L., Eisenberger, N. I., Borofsky, L. A., Pfeifer, J. H., McNealy, K., Mazziotta, J. C., & Dapretto, M. (2009). Neural correlates of social exclusion during adolescence: understanding the distress of peer rejection. *Social Cognitive and Affective Neuroscience, 4*(2), 143-157.

Mazza, M., Catalucci, A., Mariano, M., Pino, M., Tripaldi, S., Roncone, R., & Gallucci, M. (2012). Neural correlates of automatic perceptual sensitivity to facial affect in posttraumatic stress disorder subjects who survived L'Aquila eartquake of April 6, 2009. *Brain Imaging and Behavior, 6*(3), 374-386. doi: 10.1007/s11682-012-9151-x

McClennen, J. C. (2005). Domestic Violence Between Same-Gender Partners: Recent Findings and Future Research. *Journal of Interpersonal Violence, 20*(2), 149-154. doi: 10.1177/0886260504268762

McFarlane, A. C., & Yehuda, R. (2000). Clinical treatment of posttraumatic stress disorder: conceptual challenges raised by recent research. *Australian and New Zealand Journal of Psychiatry, 34*(6), 940-953. doi: 10.1046/j.1440-1614.2000.00829.x

Meewisse, M.-L., Reitsma, J. B., De Vries, G.-J., Gersons, B. P. R., & Olff, M. (2007). Cortisol and post-traumatic stress disorder in adults. *The British Journal of Psychiatry, 191*(5), 387-392. doi: 10.1192/bjp.bp.106.024877

Miller, T. R., Cohen, M. A., & Wiersema, B. (1996). Victim costs and consequences: A new look. Washington, DC: National Institute of Justice.

Moak, Z. B., & Agrawal, A. (2010). The association between perceived interpersonal social support and physical and mental health: results from the national epidemiological survey on alcohol and related conditions. *Journal of Public Health, 32*(2), 191-201. doi: 10.1093/pubmed/fdp093

Monson, C. M., Macdonald, A., Vorstenbosch, V., Shnaider, P., Goldstein, E. S. R., Ferrier-Auerbach, A. G., & Mocciola, K. E. (2012). Changes in Social Adjustment With Cognitive Processing Therapy: Effects of Treatment and Association With PTSD Symptom Change. *Journal of Traumatic Stress, 25*(5), 519-526. doi: 10.1002/jts.21735

Moriguchi, Y., Decety, J., Ohnishi, T., Maeda, M., Mori, T., Nemoto, K., . . . Komaki, G. (2007). Empathy and Judging Other's Pain: An fMRI Study of Alexithymia. *Cerebral Cortex, 17*(9), 2223-2234. doi: 10.1093/cercor/bhl130

Mueller, J., Moergeli, H., & Maercker, A. (2008). Disclosure and social acknowledgement as predictors of recovery from posttraumatic stress: a longitudinal study in crime victims. *Canadian Journal Of Psychiatry. Revue Canadienne De Psychiatrie, 53*(3), 160-168.

Murray, C. E., Mobley, A. K., Buford, A. P., & Seaman-DeJohn, M. M. (2007). Same-Sex Intimate Partner Violence. *Journal of LGBT Issues in Counseling, 1*(4), 7-30. doi: 10.1300/J462v01n04_03

Murrell, S. A., Norris, F. H., & Chipley, Q. T. (1992). Functional versus structural social support, desirable events, and positive affect in older adults. *Psychol Aging, 7*(4), 562-570.

Najavits, L. M., Weiss, R. D., & Shaw, S. R. (1997). The link between substance abuse and posttraumatic stress disorder in women. *The American Journal on Addictions, 6*(4), 273-283.

Najdowski, C. J., & Ullman, S. E. (2009). PTSD symptoms and self-rated recovery among adult sexual assault survivors: the effects of traumatic life events and psychosocial variables. *Psychology of Women Quarterly, 33*(1), 43-53.

Neria, Y., Besser, A., Kiper, D., & Westphal, M. (2010). A longitudinal study of posttraumatic stress disorder, depression, and generalized anxiety disorder in Israeli civilians exposed to war trauma. *Journal of Traumatic Stress, 23*(3), 322-330. doi: 10.1002/jts.20522

Nestler, E. J., Barrot, M., DiLeone, R. J., Eisch, A. J., Gold, S. J., & Monteggia, L. M. (2002). Neurobiology of depression. *Neuron, 34*(1), 13-25.

Nietlisbach, G., & Maercker, A. (2009). Social Cognition and Interpersonal Impairments in Trauma Survivors with PTSD. *Journal of Aggression, Maltreatment & Trauma, 18*(4), 21. doi: 10.1080/10926770902881489

Nietlisbach, G., Maercker, A., RÖssler, W., & Haker, H. (2010). Are empathic abilities impaired in posttraumatic stress disorder? *Psychological Reports, 106*(3), 832-844. doi: 10.2466/pr0.106.3.832-844

Norris, F. H., Foster, J. D., & Weisshaar, D. L. (2002). The epidemiology of gender differences in PTSD across developmental, societal, and research contexts. In R. Kimerling, P. Ouimette & J. Wolfe (Eds.), *Gender and PTSD.* (pp. 3-42). New York, NY US: Guilford Press.

Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology, 71*(3), 498-511. doi: 10.1037/0022-3514.71.3.498

O'Connor, L. E., Berry, J. W., Lewis, T., Mulherin, K., & Crisostomo, P. S. (2007). Empathy and depression: The moral system on overdrive. In T. Farrow & P. Woodruff (Eds.), *Empathy in mental illness* (pp. 49-75). New York: Cambridge University Press.

O'Donnell, M. L., Creamer, M., & Pattison, P. (2004). Posttraumatic stress disorder and depression following trauma: understanding comorbidity. *The American Journal of Psychiatry, 161*(8), 1390-1396.

O'Connor, L. E., Berry, J. W., Weiss, J., & Gilbert, P. (2002). Guilt, fear, submission, and empathy in depression. *Journal of Affective Disorders, 71*(1), 19-27.

Oberman, L. M., Hubbard, E. M., McCleery, J. P., Altschuler, E. L., Ramachandran, V. S., & Pineda, J. A. (2005). EEG evidence for mirror neuron dysfunction in autism spectrum disorders. *Cognitive Brain Research, 24*(2), 190-198. doi: 10.1016/j.cogbrainres.2005.01.014

Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York, NY US: W W Norton & Co.

Olff, M. (2012). Bonding after trauma: on the role of social support and the oxytocin system in traumatic stress. *European Journal of Psychotraumatology, 3*. Retrieved from http://dx.doi.org/10.3402/ejpt.v3i0.18597

Olff, M., Langeland, W., Draijer, N., & Gersons, B. P. R. (2007). Gender differences in posttraumatic stress disorder. *Psychological Bulletin, 133*(2), 183-204. doi: 10.1037/0033-2909.133.2.183

Olff, M., Langeland, W., Witteveen, A., & Denys, D. (2010). A psychobiological rationale for oxytocin in the treatment of posttraumatic stress disorder. *CNS Spectr, 15*(8), 522-530.

Onoda, K., Okamoto, Y., Nakashima, K. i., Nittono, H., Ura, M., & Yamawaki, S. (2009). Decreased ventral anterior cingulate cortex activity is associated with reduced social pain during emotional support. *Social Neuroscience, 4*(5), 443-454.

Orsillo, S. M., Batten, S. V., Plumb, J. C., Luterek, J. A., & Roessner, B. M. (2004). An Experimental Study of Emotional Responding in Women With Posttraumatic Stress Disorder Related to Interpersonal Violence. *Journal of Traumatic Stress, 17*(3), 241-248. doi: 10.1023/b:jots.0000029267.61240.94

Orsillo, S. M., Theodore-Oklota, C., Luterek, J. A., & Plumb, J. (2007). The development and psychometric evaluation of the Emotional Reactivity and Numbing Scale. *Journal of Nervous & Mental Disease, 195*(10), 830-836. doi: 10.1097/NMD.0b013e318156816f

Owen, S. S., & Burke, T. W. (2004). An exploration of prevalence of domestic violence in same-sex relationships *Psychological Reports, 95*(1), 129-132.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychol Bull, 129*(1), 52-73.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2008). Predictors of Posttraumatic Stress Disorder and Symptoms in Adults: A Meta-Analysis. *Psychological Trauma: Theory, Research, Practice, and Policy, 1, Supplement*(0), 3-36. doi: 10.1037/1942-9681.s.1.3

Pagelow, M. D. (1988). Marital rape. In V. B. Van Hasselt, R. L. Morrison, A. S. Bellack & M. Hersen (Eds.), *Handbook of Family Violence* (pp. 207-232). New York: Plenum Press.

Paivio, S. C., & Laurent, C. (2001). Empathy and emotion regulation: reprocessing memories of childhood abuse. *Journal of Clinical Psychology, 57*(2), 213-226.

Pearlman, L. A., & Courtois, C. A. (2005). Clinical applications of the attachment framework: Relational treatment of complex trauma. *Journal of Traumatic Stress, 18*(5), 449-459. doi: 10.1002/jts.20052

Peirce, J. M., Burke, C. K., Stoller, K. B., Neufeld, K. J., & Brooner, R. K. (2009). Assessing traumatic event exposure: comparing the Traumatic Life Events Questionnaire to the Structured Clinical Interview for DSM-IV. *Psychological Assessment, 21*(2), 210.

Perry, B. D., Pollard, R. A., Blakley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and 'use-dependent'

development of the brain: How 'states' become 'traits.'. *Infant Mental Health Journal, 16*(4), 271-291. doi: 10.1002/1097-0355(199524)16:4

Pico-Alfonso, M. A. (2005). Psychological intimate partner violence: The major predictor of posttraumatic stress disorder in abused women. *Neuroscience and Biobehavioral Reviews, 29*(1), 181-194.

Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., Rivers, A. J., Morgan, C. A., & Southwick, S. M. (2010). Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of Operations Enduring Freedom and Iraqi Freedom: The role of resilience, unit support, and postdeployment social support. *Journal of Affective Disorders, 120*(1), 188.

Pigman, G. W. (1995). Freud and the history of empathy. *International Journal of Psycho-Analysis, 76 (Pt 2)*, 237-256.

Porges, S. W. (2001). The polyvagal theory: phylogenetic substrates of a social nervous system. *International Journal of Psychophysiology, 42*(2), 123-146. doi: 10.1016/s0167-8760(01)00162-3

Porges, S. W. (2003a). The Polyvagal Theory: phylogenetic contributions to social behavior. *Physiology & Behavior, 79*(3), 503-513. doi: 10.1016/s0031-9384(03)00156-2

Porges, S. W. (2003b). Social Engagement and Attachment. *Annals of the New York Academy of Sciences, 1008*(1), 31-47. doi: 10.1196/annals.1301.004

Porges, S. W. (2007). The polyvagal perspective. *Biological Psychology, 74*(2), 116-143. doi: 10.1016/j.biopsycho.2006.06.009

Porges, S. W. (2010). The listening project. *Brain-Body Center, University of Illinois at Chicago*.

Porges, S. W. (2011). *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*. New York: W. W. Norton.

Porges, S. W., & Furman, S. A. (2011). The early development of the autonomic nervous system provides a neural platform for social behaviour: A polyvagal perspective. *Infant and Child Development, 20*(1), 106-118. doi: 10.1002/icd.688

Preston, S. D. (2007). A perception-action model for empathy. In T. F. D. Farrow & P. Woodruff (Eds.), *Empathy in Mental Illness* (pp. 428-447). Cambridge: Cambridge University Press.

Preston, S. D., & de Waal, F. B. (2002). Empathy: Its ultimate and proximate bases. *Behav Brain Sci, 25*(1), 1-20; discussion 20-71.

Protopopescu, X., Pan, H., Tuescher, O., Cloitre, M., Goldstein, M., Engelien, W., . . . Stern, E. (2005). Differential time courses and specificity of amygdala activity in posttraumatic stress disorder subjects and normal control subjects. *Biological Psychiatry, 57*(5), 464-473.

Radloff, L. S. (1977). The CES-D Scale. *Applied Psychological Measurement, 1*(3), 385-401. doi: 10.1177/014662167700100306

Ramaswamy, V., Aroian, K., & Templin, T. (2009). Adaptation and Psychometric Evaluation of the Multidimensional Scale of Perceived Social Support for Arab

American Adolescents. *American Journal of Community Psychology, 43*(1), 49-56. doi: 10.1007/s10464-008-9220-x

Rameson, L. T., & Lieberman, M. D. (2009). Empathy: A Social Cognitive Neuroscience Approach. *Social and Personality Psychology Compass, 3*(1), 94-110. doi: 10.1111/j.1751-9004.2008.00154.x

Resick, P. A. (1993). The Psychological Impact of Rape. *Journal of Interpersonal Violence, 8*(2), 223-255. doi: 10.1177/088626093008002005

Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology, 61*(6), 984.

Riggs, D. S. (2000). Marital and family therapy. In E. Foa, T. Keane & M. Friedman (Eds.), *Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies*. New York: Guilford Publications Incorporated.

Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress, 11*(1), 87-101.

Rizzolatti, G., & Craighero, L. (2004). The Mirror-Neuron System. *Annual Review of Neuroscience, 27*(1), 169-192. doi: doi:10.1146/annurev.neuro.27.070203.144230

Roemer, L., Litz, B. T., Orsillo, S. M., & Wagner, A. W. (2001). A preliminary investigation of the role of strategic withholding of emotions in PTSD. *Journal of Traumatic Stress, 14*(1), 149-156. doi: 10.1023/a:1007895817502

Roemer, L., Orsillo, S. M., Borkovec, T. D., & Litz, B. T. (1998). Emotional response at the time of a potentially traumatizing event and PTSD symptomatology: A preliminary retrospective analysis of the DSM-IV Criterion A-2. *Journal of Behavior Therapy and Experimental Psychiatry, 29*(2), 123-130. doi: 10.1016/S0005-7916(98)00007-X

Rogers, C. R. (1956). The Necessary and Sufficient Conditions of Therapeutic Personality Change. *Consulting Psychology, 21*, 95–103.

Roth, A., & Fonagy, P. (2006). *What works for whom: A critical review of psychotherapy research*. New York: Guilford Press.

Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *Am Psychol, 41*(7), 813-819.

Roth, S., Newman, E., Pelcovitz, D., van der Kolk, B., & Mandel, F. S. (1997). Complex PTSD in victims exposed to sexual and physical abuse: Results from the DSM-IV field trial for posttraumatic stress disorder. *Journal of Traumatic Stress, 10*(4), 539-555. doi: 10.1002/jts.2490100403

Rothbaum, B. O., Astin, M. C., & Marsteller, F. (2005). Prolonged Exposure versus Eye Movement Desensitization and Reprocessing (EMDR) for PTSD rape victims. *Journal of Traumatic Stress, 18*(6), 607-616. doi: 10.1002/jts.20069

Rothbaum, B. O., Foa, E. B., Riggs, D. S., Murdock, T., & Walsh, W. (1992). A prospective examination of post-traumatic stress disorder in rape victims. *Journal of Traumatic Stress, 5*(3), 455-475. doi: 10.1007/bf00977239

Rueckert, L., Branch, B., & Doan, T. (2011). Are Gender Differences in Empathy Due to Differences in Emotional Reactivity? *Psychology, 2*(6), 574-578 doi: 10.4236/psych.2011.26088

Ruggiero, K. J., Ben, K. D., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD checklist—civilian version. *Journal of Traumatic Stress, 16*(5), 495-502. doi: 10.1023/a:1025714729117

Runtz, M. G., & Schallow, J. R. (1997). Social support and coping strategies as mediators of adult adjustment following childhood maltreatment. *Child Abuse Negl, 21*(2), 211-226.

Sackett, L. A., & Saunders, D. G. (1999). The impact of different forms of psychological abuse on battered women. *Violence Vict, 14*(1), 105-117.

Sarason, I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: The Social Support Questionnaire. *Journal of Personality and Social Psychology, 44*(1), 127.

Saunders, S. M. (2001). Pretreatment correlates of the therapeutic bond. *Journal of Clinical Psychology, 57*(12), 1339-1352. doi: 10.1002/jclp.1101

Schell, T. L., Marshall, G. N., & Jaycox, L. H. (2004). All symptoms are not created equal: the prominent role of hyperarousal in the natural course of posttraumatic

psychological distress. *J Abnorm Psychol, 113*(2), 189-197. doi: 10.1037/0021-843x.113.2.189

Schnurr, P. P., Hayes, A. F., Lunney, C. A., McFall, M., & Uddo, M. (2006). Longitudinal analysis of the relationship between symptoms and quality of life in veterans treated for posttraumatic stress disorder. *J Consult Clin Psychol, 74*(4), 707-713. doi: 10.1037/0022-006x.74.4.707

Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal, 22*(1-2), 7-66. doi: 10.1002/1097-0355(200101/04)22:1<7::aid-imhj2>3.0.co;2-n

Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Gray, S. H. (2008). Nonresponse and Dropout Rates in Outcome Studies on PTSD: Review and Methodological Considerations. *Psychiatry: Interpersonal and Biological Processes, 71*(2), 134-168. doi: 10.1521/psyc.2008.71.2.134

Schulte-Rüther, M., Markowitsch, H. J., Fink, G. R., & Piefke, M. (2007). Mirror Neuron and Theory of Mind Mechanisms Involved in Face-to-Face Interactions: A Functional Magnetic Resonance Imaging Approach to Empathy. *Journal of Cognitive Neuroscience, 19*(8), 1354-1372. doi: 10.1162/jocn.2007.19.8.1354

Schumm, J. A., Briggs-Phillips, M., & Hobfoll, S. E. (2006). Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. *Journal of Traumatic Stress, 19*(6), 825-836.

Schützwohl, M., & Maercker, A. (1999). Effects of varying diagnostic criteria for posttraumatic stress disorder are endorsing the concept of partial PTSD. *Journal of Traumatic Stress, 12*(1), 155-165. doi: 10.1023/a:1024706702133

Schützwohl, M., & Maercker, A. (2000). Anger in Former East German Political Prisoners: Relationship to Posttraumatic Stress Reactions and Social Support. *The Journal of Nervous and Mental Disease, 188*(8), 483-489.

Seng, J. S. (2010). Posttraumatic Oxytocin Dysregulation: Is It a Link Among Posttraumatic Self Disorders, Posttraumatic Stress Disorder, and Pelvic Visceral Dysregulation Conditions in Women? *Journal of Trauma & Dissociation, 11*(4), 387-406. doi: 10.1080/15299732.2010.496075

Shansky, R. M., Glavis-Bloom, C., Lerman, D., McRae, P., Benson, C., Miller, K., . . . Arnsten, A. F. T. (2003). Estrogen mediates sex differences in stress-induced prefrontal cortex dysfunction. *Mol Psychiatry, 9*(5), 531-538.

Shansky, R. M., Hamo, C., Hof, P. R., Lou, W., McEwen, B. S., & Morrison, J. H. (2010). Estrogen Promotes Stress Sensitivity in a Prefrontal Cortex–Amygdala Pathway. *Cerebral Cortex, 20*(11), 2560-2567. doi: 10.1093/cercor/bhq003

Shapiro, R. (2010). *The Trauma Treatment Handbook: Protocols Across the Spectrum* New York: W. W. Norton

Sheff, D. (2000). *All We Are Saying: The Last Major Interview with John Lennon and Yoko Ono*. New York: St. Martin's Griffin.

Shin, L. M., Kosslyn, S. M., McNally, R. J., Alpert, N. M., Thompson, W. L., Rauch, S. L., . . . Pitman, R. K. (1997). Visual imagery and perception in posttraumatic

stress disorder: a positron emission tomographic investigation. *Archives of General Psychiatry, 54*(3), 233.

Shin, L. M., McNally, R. J., Kosslyn, S. M., Thompson, W. L., Rauch, S. L., Alpert, N. M., . . . Pitman, R. K. (1999). Regional cerebral blood flow during script-driven imagery in childhood sexual abuse-related PTSD: a PET investigation. *American Journal of Psychiatry, 156*(4), 575-584.

Shin, L. M., Rauch, S. L., & Pitman, R. K. (2006). Amygdala, Medial Prefrontal Cortex, and Hippocampal Function in PTSD. *Annals of the New York Academy of Sciences, 1071*(1), 67-79. doi: 10.1196/annals.1364.007

Siegel, D. J. (1995). Memory, trauma, and psychotherapy: A cognitive science view. *Journal of Psychotherapy Practice and Research, 4*, 93-122.

Siegel, D. J. (1999). *The developing mind: toward a neurobiology of interpersonal experience*. New York, NY: Guilford Press.

Siegel, D. J. (2001). Toward an interpersonal neurobiology of the developing mind: Attachment relationships, "mindsight," and neural integration. *Infant Mental Health Journal, 22*(1-2), 67-94. doi: 10.1002/1097-0355(200101/04)22:1<67::aid-imhj3>3.0.co;2-g

Siegel, D. J. (2003). An interpersonal neurobiology of psychotherapy: The developing mind and the resolution of trauma. In E. P. Solomon & D. J. Siegel (Eds.), *Healing Trauma* (pp. 1-56). New York: W. W. Norton.

Siegel, D. J. (2006). An interpersonal neurobiology approach to psychotherapy: Awareness, mirror neurons, and neural plasticity in the development of well-being. *Psychiatric Annals, 36*(4), 248-256.

Silani, G., Bird, G., Brindley, R., Singer, T., Frith, C., & Frith, U. (2008). Levels of emotional awareness and autism: An fMRI study. *Social Neuroscience, 3*(2), 97-112. doi: 10.1080/17470910701577020

Silverman, J. G., Raj, A., Mucci, L. A., & Hathaway, J. E. (2001). Dating Violence Against Adolescent Girls and Associated Substance Use, Unhealthy Weight Control, Sexual Risk Behavior, Pregnancy, and Suicidality. *JAMA: The Journal of the American Medical Association, 286*(5), 572-579. doi: 10.1001/jama.286.5.572

Simmons, A. N., Paulus, M. P., Thorp, S. R., Matthews, S. C., Norman, S. B., & Stein, M. B. (2008). Functional Activation and Neural Networks in Women with Posttraumatic Stress Disorder Related to Intimate Partner Violence. *Biological Psychiatry, 64*(8), 681-690.

Simmons, A. N., Strigo, I. A., Matthews, S. C., Paulus, M. P., & Stein, M. B. (2009). Initial Evidence of a Failure to Activate Right Anterior Insula During Affective Set Shifting in Posttraumatic Stress Disorder. *Psychosomatic Medicine, 71*(4), 373-377. doi: 10.1097/PSY.0b013e3181a56ed8

Singer, T. (2006). The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research. *Neuroscience & Biobehavioral Reviews, 30*(6), 855-863. doi: 10.1016/j.neubiorev.2006.06.011

Singer, T., & Lamm, C. (2009). The Social Neuroscience of Empathy. *Annals of the New York Academy of Sciences, 1156*(1), 81-96. doi: 10.1111/j.1749-6632.2009.04418.x

Slavich, G. M., O'Donovan, A., Epel, E. S., & Kemeny, M. E. (2010). Black sheep get the blues: A psychobiological model of social rejection and depression. *Neuroscience & Biobehavioral Reviews, 35*(1), 39-45.

Slavich, G. M., Way, B. M., Eisenberger, N. I., & Taylor, S. E. (2010). Neural sensitivity to social rejection is associated with inflammatory responses to social stress. *Proceedings of the National Academy of Sciences, 107*(33), 14817-14822. doi: 10.1073/pnas.1009164107

Smith, P. H., Danis, M., & Helmick, L. (1998). Changing the Health Care Response to Battered Women: A Health Education Approach. *Family & Community Health, 20*(4), 1-18.

Smith, P. H., Earp, J. A., & DeVellis, R. (1995). Measuring battering: development of the Women's Experience with Battering (WEB) Scale. *Womens Health, 1*(4), 273-288.

Smith, P. H., Thornton, G. E., DeVellis, R., Earp, J., & Coker, A. L. (2002). A population-based study of the prevalence and distinctiveness of battering, physical assault, and sexual assault in intimate relationships. *Violence Against Women, 8*(10), 1208-1232.

Smith, P. H., White, J. W., & Holland, L. J. (2003). A Longitudinal Perspective on Dating Violence Among Adolescent and College-Age Women. *American Journal of Public Health, 93*(7), 1104-1109. doi: 10.2105/ajph.93.7.1104

Solomon, E. P., & Siegel, D. J. (2003). *Healing Trauma: Attachment, Mind, Body and Brain*. New York: W. W. Norton.

Solomon, Z., Horesh, D., & Ein-Dor, T. (2009). The longitudinal course of posttraumatic stress disorder symptom clusters among war veterans. *J Clin Psychiatry, 70*(6), 837-843.

Soubelet, A., & Salthouse, T. A. (2011). Influence of Social Desirability on Age Differences in Self-Reports of Mood and Personality. *Journal of Personality, 79*(4), 741-762.

Spahic-Mihajlovic, A., Crayton, J. W., & Neafsey, E. J. (2005). Selective numbing and hyperarousal in male and female Bosnian refugees with PTSD. *Journal of Anxiety Disorders, 19*(4), 383-402. doi: 10.1016/j.janxdis.2004.03.004

Spinazzola, J., Rhodes, A. M., Emerson, D., Earle, E., & Monroe, K. (2011). Application of yoga in residential treatment of traumatized youth. *Journal of the American Psychiatric Nurses Association, 17*(6), 431-444.

Spinella, M. (2005). Prefrontal substrates of empathy: Psychometric evidence in a community sample. *Biological Psychology, 70*(3), 175-181. doi: 10.1016/j.biopsycho.2004.01.005

Spitzer, R. L., First, M. B., & Wakefield, J. C. (2007). Saving PTSD from itself in DSM-V. *Journal of Anxiety Disorders, 21*(2), 233-241. doi: 10.1016/j.janxdis.2006.09.006

Stark, E. (2007). *Coercive Control: How Men Entrap Women in Personal Life* New York: Oxford University Press.

Stein, M. B., Walker, J. R., & Forde, D. R. (2000). Gender differences in susceptibility to posttraumatic stress disorder. *Behaviour Research and Therapy, 38*(6), 619-628. doi: 10.1016/S0005-7967(99)00098-4

Steuwe, C., Daniels, J., Frewen, P., Densmore, M., Pannasch, S., Beblo, T., . . . Lanius, R. (2012). Effect of direct eye contact in PTSD related to interpersonal trauma: An fMRI study of activation of an innate alarm system. *Social Cognitive and Affective Neuroscience*. doi: 10.1093/scan/nss105

Streeter, C., Gerbarg, P., Saper, R., Ciraulo, D., & Brown, R. (2012). Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Medical hypotheses, 78*(5), 571-579.

Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation: alexithymia in medical and psychiatric illness*. Cambridge Cambridge University Press.

Testa, M., Hoffman, J. H., & Livingston, J. A. (2010). Alcohol and sexual risk behaviors as mediators of the sexual victimization–revictimization relationship. *Journal of Consulting and Clinical Psychology, 78*(2), 249-259. doi: 10.1037/a0018914

Thoits, P. A. (1986). Social support as coping assistance. *J Consult Clin Psychol, 54*(4), 416-423.

Titchener, E. (1909). *Experimental psychology of the thought processes*: Macmillan.

Tjaden, P., & Thoennes, N. (1998). Prevalence, Incidence, and Consequences of Violence Against Women: Findings From the National Violence Against Women Survey Washington, DC and Atlanta, GA: National Institute of Justice, U.S. Department of Health and Human Services, and Centers for Disease Control and Prevention.

Tolin, D. F., & Foa, E. B. (2006). Sex Differences in Trauma and Posttraumatic Stress Disorder: A Quantitative Review of 25 Years of Research. *Psychological Bulletin, 132*(6), 959-992. doi: Doi: 10.1037/0033-2909.132.6.959

Truman, J. L., & Planty, M. (2012). Criminal Victimization 2011. *National Crime Victimization Survey*. Washington, DC: U.S. Department of Justice: Bureau of Justice Statistics.

Tull, M. T., Barrett, H. M., McMillan, E. S., & Roemer, L. (2007). A Preliminary Investigation of the Relationship Between Emotion Regulation Difficulties and Posttraumatic Stress Symptoms. *Behavior Therapy, 38*(3), 303-313. doi: 10.1016/j.beth.2006.10.001

Tull, M. T., & Roemer, L. (2003). Alternative explanations of emotional numbing of posttraumatic stress disorder: An examination of hyperarousal and experiential avoidance. *Journal of Psychopathology and Behavioral Assessment, 25*(3), 147-154. doi: 10.1023/a:1023568822462

Turnbull, G. J. (2006). The biology of post-traumatic stress disorder. *Psychiatry, 5*(7), 221-224. doi: 10.1053/j.mppsy.2006.04.001

U.S. Department of Justice. (2001). Special Report: Intimate Partner Violence and Age of Victim. Washington, DC: Bureau of Justice Statistics.

Uddin, L. Q., Iacoboni, M., Lange, C., & Keenan, J. P. (2007). The self and social cognition: the role of cortical midline structures and mirror neurons. *Trends in Cognitive Sciences, 11*(4), 153-157. doi: 10.1016/j.tics.2007.01.001

Ullman, S. E. (1996). Social Reactions, Coping Strategies, and Self-Blame Attributions in Adjustment to Sexual Assault. *Psychology of Women Quarterly, 20*(4), 505-526. doi: 10.1111/j.1471-6402.1996.tb00319.x

Ullman, S. E. (1999). Social support and recovery from sexual assault: A review. *Aggression and Violent Behavior, 4*(3), 343-358. doi: 10.1016/s1359-1789(98)00006-8

Ullman, S. E., & Filipas, H. H. (2001). Predictors of PTSD symptom severity and social reactions in sexual assault victims. *Journal of Traumatic Stress, 14*(2), 369-389. doi: 10.1023/a:1011125220522

Ullman, S. E., Najdowski, C. J., & Filipas, H. H. (2009). Child sexual abuse, post-traumatic stress disorder, and substance use: predictors of revictimization in adult sexual assault survivors. *Journal of Child Sexual Abuse, 18*(4), 367-385.

Ullman, S. E., Townsend, S. M., Filipas, H. H., & Starzynski, L. L. (2007). Structural models of the relations of assault severity, social support, avoidance coping, self-

blame, and PTSD among sexual assault survivors. *Psychology of Women Quarterly, 31*(1), 23-37. doi: 10.1111/j.1471-6402.2007.00328.x

United States Department of Justice: Office of Violence Against Women. (2012). Sexual Assault. Retrieved November 7, 2012, from http://www.ovw.usdoj.gov/sexassault.htm

van der Hart, O., van Ochten, J. M., van Son, M. J. M., Steele, K., & Lensvelt-Mulders, G. (2008). Relations among peritraumatic dissociation and posttraumatic stress: A critical review. *Journal of Trauma & Dissociation, 9*(4), 481-505. doi: 10.1080/15299730802223362

van der Kolk, B. A. (1989). The compulsion to repeat the trauma. Re-enactment, revictimization, and masochism. *The Psychiatric clinics of North America, 12*(2), 389-411.

van der Kolk, B. A. (1994). The Body Keeps the Score: Memory and the Evolving Psychobiology of Posttraumatic Stress. *Harvard Review of Psychiatry, 1*(5), 253-265. doi: 10.3109/10673229409017088

van der Kolk, B. A. (2001). The psychobiology and psychopharmacology of PTSD. *Human Psychopharmacology: Clinical and Experimental, 16*(S1), S49-S64. doi: 10.1002/hup.270

van der Kolk, B. A. (2003). Posttraumatic stress disorder and the nature of trauma. In E. P. Solomon & D. J. Siegel (Eds.), *Healing Trauma: Attachment, Mind, Body and Brain*. New York: W. W. Norton.

van der Kolk, B. A. (2006). Clinical Implications of Neuroscience Research in PTSD. *Annals of the New York Academy of Sciences, 1071*(1), 277-293. doi: 10.1196/annals.1364.022

van der Kolk, B. A. (2007). The history of trauma in psychiatry. In M. Friedman, T. M. Keane & P. A. Resick (Eds.), *Handbook of PTSD: Science and practice* (pp. 19-36). New York: The Guilford Press.

van der Kolk, B. A., Greenberg, M. S., Orr, S. P., & Pitman, R. K. (1989). Endogenous opioids, stress induced analgesia, and posttraumatic stress disorder. *Psychopharmacol Bull, 25*(3), 417-421.

van der Kolk, B. A., Perry, J. C., & Herman, J. L. (1991). Childhood origins of self-destructive behavior. *Am J Psychiatry, 148*(12), 1665-1671.

van der Kolk, B. A., Pynoos, R. S., Cicchetti, D., Cloitre, M., D'Andrea, W., Ford, J., . . . Teicher, M. H. (2009). Proposal to include a developmental trauma disorder diagnosis for children and adolescents in DSM-V. *Official submission from the National Child Traumatic Stress Network Developmental Trauma Disorder Taskforce to the American Psychiatric Association.*

van der Kolk, B. A., Roth, S., Pelcovitz, D., Sunday, S., & Spinazzola, J. (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress, 18*(5), 389-399. doi: 10.1002/jts.20047

Vasterling, J. J., & Brewin, C. R. (2005). *Neurpsychology of PTSD: Biological, cognitive and clinical perspectives*. New York: Guilford Press.

Vaux, A., Burda, P., & Stewart, D. E. (1986). Orientation Toward Utilization of Support Resources. *Journal of Community Psychology, 14*(2), 159-170.

Verbosky, S. J., & Ryan, D. A. (1988). Female partners of Vietnam veterans: Stress by proximity. *Issues in Mental Health Nursing, 9*(1), 95-104.

Vidal, M. E., & Petrak, J. (2007). Shame and adult sexual assault: a study with a group of female survivors recruited from an East London population. *Sexual and Relationship Therapy, 22*(2), 159-171. doi: 10.1080/14681990600784143

Vranceanu, A. M., Hobfoll, S. E., & Johnson, R. J. (2007). Child multi-type maltreatment and associated depression and PTSD symptoms: The role of social support and stress. *Child Abuse & Neglect, 31*(1), 71-84.

Wagner, A. W., Roemer, L., Orsillo, S. M., & Litz, B. T. (2003). Emotional experiencing in women with posttraumatic stress disorder: congruence between facial expressivity and self-report. *Journal of Traumatic Stress, 16*(1), 67-75.

Wagner, B., Keller, V., Knaevelsrud, C., & Maercker, A. (2012). Social acknowledgement as a predictor of post-traumatic stress and complicated grief after witnessing assisted suicide. *International Journal of Social Psychiatry, 58*(4), 381-385. doi: 10.1177/0020764011400791

Weathers, F. W., Litz, B. T., Herman, D., Huska, J., & Keane, T. M. (1993). *The PTSD Checklist (PCL): Reliability, Validity, and Diagnostic Utility.* . Paper presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.

Weaver, T. L., & Clum, G. A. (1995). Psychological distress associated with interpersonal violence: A meta-analysis. *Clinical Psychology Review, 15*(2), 115-140. doi: 10.1016/0272-7358(95)00004-9

Weems, C. F., Saltzman, K. M., Reiss, A. L., & Carrion, V. G. (2003). A Prospective Test of the Association Between Hyperarousal and Emotional Numbing in Youth With a History of Traumatic Stress. *Journal of Clinical Child & Adolescent Psychology, 32*(1), 166-171. doi: 10.1207/s15374424jccp3201_15

Weiss, D. S., & Marmar, C. R. (1997). The Impact of Event Scale- Revised. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 399–411). New York: Guilford Press.

Weiss, S. J. (2007). Neurobiological Alterations Associated With Traumatic Stress. *Perspectives in Psychiatric Care, 43*(3), 114-122. doi: 10.1111/j.1744-6163.2007.00120.x

Wells, M., Trad, A., & Alves, M. (2003). Training Beginning Supervisors Working with New Trauma Therapists. *Journal of College Student Psychotherapy, 17*(3), 19-39. doi: 10.1300/J035v17n03_03

Wheatley-Crosbie, J. (2006). Healing traumatic reenactment: Psyche's return from soma's underworld. *United States Association for Body Psychotherapy (USABP) Journal, 5*(2), 10-28.

Wispé, L. (1986). The Distinction Between Sympathy and Empathy: To Call Forth a Concept, A Word Is Needed. *Journal of Personality and Social Psychology, 50*(2), 314-321. doi: 10.1037/0022-3514.50.2.314

Woodruff, C. C., Daut, R., Brower, M., & Bragg, A. (2011). Electroencephalographic α-band and β-band correlates of perspective-taking and personal distress. *NeuroReport, 22*(15), 744-748 710.1097/WNR.1090b1013e32834ab32439.

Woods, S. J. (2000). Prevalence and patterns of posttraumatic stress disorder in abused and postabused women. *Issues in Mental Health Nursing, 21*(3), 309-324.

Woodward, S. H., Kaloupek, D. G., Streeter, C. C., Martinez, C., Schaer, M., & Eliez, S. (2006). Decreased anterior cingulate volume in combat-related PTSD. *Biological Psychiatry, 59*(7), 582-587.

Worell, J., & Remer, P. (2003). *Feminist perspectives in therapy: Empowering diverse women (2nd ed.)*. Hoboken, NJ US: John Wiley & Sons Inc.

World Health Organization: Violence Prevention Alliance. (2010). Definition and Typology of Violence. Retrieved 24 February, 2012, from http://www.who.int/violenceprevention/approach/definition/en/index.html

Yehuda, R. (1997). Sensitization of the Hypothalamic-Pituitary-Adrenal Axis in Posttraumatic Stress Disorder. *Annals of the New York Academy of Sciences, 821*(1), 57-75. doi: 10.1111/j.1749-6632.1997.tb48269.x

Yehuda, R. (2006). Advances in Understanding Neuroendocrine Alterations in PTSD and Their Therapeutic Implications. *Annals of the New York Academy of Sciences, 1071*(1), 137-166. doi: 10.1196/annals.1364.012

Yehuda, R., & Bierer, L. M. (2009). The relevance of epigenetics to PTSD: Implications for the DSM-V. *Journal of Traumatic Stress, 22*(5), 427-434.

Yoshihama, M., & Horrocks, J. (2005). Relationship between emotional numbing and arousal symptoms in American women of Japanese descent who experienced interpersonal victimization. *Journal of Anxiety Disorders, 19*(4), 443-459. doi: 10.1016/j.janxdis.2004.04.005

Young, M., Read, J., Barker-Collo, S., & Harrison, R. (2001). Evaluating and Overcoming Barriers to Taking Abuse Histories. *Professional Psychology: Research and Practice, 32*(4), 407-414.

Zak, P. J., Kurzban, R., & Matzner, W. T. (2004). The Neurobiology of Trust. *Annals of the New York Academy of Sciences, 1032*(1), 224-227. doi: 10.1196/annals.1314.025

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41. doi: 10.1207/s15327752jpa5201_2

Zimet, G. D., Powell, S. S., Farley, G. K., & Werkman, S. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 55*(3-4), 610-617. doi: 10.1207/s15327752jpa5503&4_17

Zlotnick, C., Franklin, C. L., & Zimmerman, M. (2002). Does "subthreshold" posttraumatic stress disorder have any clinical relevance? *Comprehensive Psychiatry, 43*(6), 413-419.

Zoellner, L. A., Foa, E. B., & Brigidi, B. D. (1999). Interpersonal friction and PTSD in female victims of sexual and nonsexual assault. *Journal of Traumatic Stress, 12*(4), 689-700. doi: 10.1023/a:1024777303848

APPENDIX A

INSTRUMENTATION FOR PILOT STUDY

Participant ID: _____

Demographic Information

Instructions:
Please respond to the following questions to the best of your ability. You may skip questions and return to them at a later time.

Your time and information are very much appreciated!

*****All Responses will Remain Confidential*****

1. **Gender:**
   - ○ Female
   - ○ Male
   - ○ Other:_____

2. **Age:** *(In Years)*

   _____

3. **How would you describe your Race/Ethnicity:** *(choose only one)*
   - ○ Hispanic or Latino
   - ○ White or Caucasian
   - ○ Black or African American
   - ○ American Indian or Alaska Native
   - ○ Native Hawaiian or Other Pacific Islander
   - ○ Asian
   - ○ Middle Eastern
   - ○ Two or More Races
   - ○ Other

4. **What is the highest level of education you have earned:** *(choose only one)*
   - ○ Grade school
   - ○ Some high school
   - ○ Graduated high school
   - ○ Trade school

- ○ Some college
- ○ BS/BA
- ○ Some graduate school
- ○ MS/MA/EDS
- ○ PhD
- ○ JD/MD
- ○ Other

5. Is English your primary language?

- ○ Yes
- ○ No

6. *<u>If English is NOT your primary language</u>*, On a scale of 1 to 10 how comfortable do you feel with the English language: *(Please Circle a Number Below)*

1=Not at all Comfortable 10= Extremely Comfortable

1 2 3 4 5 6 7 8 9 10

7. Current relationship status: *(choose only one)*

- ○ Single, never married
- ○ Married or domestic partnership
- ○ Dating, Living together
- ○ Dating, Not Living Together
- ○ Separated /Divorced
- ○ Widowed
- ○ Other

8. Adding together income from all sources, what was your total household income in 2012:

- ○ Under $10,000
- ○ $10,000 – $24,999

- ○ $25,000 - $49,999
- ○ $50,000 - $74,999
- ○ $75,000 - $100,000
- ○ Over $100,000

9. Have you ever had any counseling, psychological or psychiatric treatment?

- ○ Yes
- ○ No

10. All together, how many times have you attended counseling, psychotherapy or psychiatric services?

- ○ Less than 3 times
- ○ 3-5 times
- ○ 5-10 times
- ○ More than 10 times

11. How long has it been since your last visit to a counselor, psychologist, clinical social worker, or psychiatrist?

- ○ Days
- ○ Weeks
- ○ Months
- ○ Years

12. On a scale from 1 – 10, how beneficial did you find the counseling, psychotherapy or psychiatry services in which you participated?

1= Not at all Helpful 10 = Extremely Helpful

1 2 3 4 5 6 7 8 9 10

13. **Are you currently taking any medications for any psychological (i.e., mental) concerns?**

    ○ No

    ○ Yes

14. ***<u>If YES, you are taking medication</u>*, please list the medications:** (correct spelling is not necessary)

    _____

    _____

15. **Did you ever seek counseling, psychotherapy or psychiatric services specifically for any form of physical or sexual violence that you experienced as an adult?**

    ○ Yes

    ○ No

CES-D 10

(Andresen, Malmgren, Carter, & Patrick, 1994)

Instructions:

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week by checking the appropriate box for each question.

	Rarely or none of the time (less than 1 day)	**Some or a little of the time (1-2 days)**	**Occasionally or a moderate amount of time (3-4 days)**	**All of the time (5-7 days)**
I was bothered by things that usually don't bother me.				
I had trouble keeping my mind on what I was doing				
I felt depressed.				
I felt that everything I did was an effort.				
I felt hopeful about the future.				
I felt fearful.				
My sleep was restless.				
I was happy.				
I felt lonely.				
I could not "get going."				

SLEQ-R

(Goodman, Corcoran, Turner, Yuan, & Green, 1998)

Instructions:
The items listed below refer to events that may have taken place at any point in your entire life, including early childhood. Please answer the questions to the best of your ability. If you find any of the questions upsetting or distressing and feel you need assistance or would like to speak with someone to work through any distress, you can contact a member of the clinical staff at Family Services of the Piedmont or use the following information to contact a crisis mental health center in your area:
North Carolina Department of Health and Human Services:
(L*isting of crisis mental health centers in NC and 24 hour hotlines*)
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

Please remember that your responses will remain confidential and anonymous!

1. **Have you ever had a life-threatening illness?**

   No _____ Yes _____

2. **Were you ever in a life-threatening accident?**

   No _____ Yes _____

3. **Was physical force or a weapon ever used against you in a robbery or mugging?**

   No _____ Yes _____

   If yes, at what age? _____

4. **Has an immediate family member, romantic partner, or very close friend died because of accident, homicide, or suicide?**

   No _____ Yes _____

   If yes, how old were you? _____

5. **Have you had a miscarriage?**

   No _____ Yes _____

If yes, at what age?_____

6. **As a child or adolescent (under the age of 18 years), did anyone (parent, other family member, romantic partner, stranger or someone else) ever <u>physically force</u> you to have intercourse, or to have oral or anal sex against your wishes, or when you were helpless, such as being asleep?**

   No _____ Yes _____

   If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10_____

   If yes, how old were you the most recent time it occurred (in years)?
   _____

7. **As an adult (over the age of 18 years), has anyone (family member, romantic partner, stranger or someone else) ever <u>physically forced</u> you to have intercourse, or to have oral or anal sex against your wishes, or when you were helpless, such as being asleep or intoxicated?**

   No _____ Yes _____

   If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10_____

   If yes, how old were you the most recent time it occurred (in years)?
_____

   If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

   - ○ Romantic Partner
   - ○ Date
   - ○ Family Member
   - ○ Stranger
   - ○ Someone else

8. **Other than experiences mentioned in earlier questions, has anyone ever touched private parts of your body, made you touch their body, or tried to make you to have sex against your wishes?**

   No _____ Yes _____

If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10_____

If yes, how old were you the most recent time it occurred (in years)?
_____

9. When you were a child, did a parent, caregiver or other person ever slap you repeatedly, beat you, or otherwise attack or harm you?

No _____ Yes_____

If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10 _____

If yes, how old were you the most recent time it occurred (in years)?
_____

10. As an adult, have you ever been kicked, beaten, slapped around or otherwise physically harmed by a romantic partner, date, family member, stranger, or someone else?

No _____ Yes _____

If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10_____

If yes, how old were you the most recent time it occurred (in years)?
_____

If yes, what was the relationship of the person who did this to you(Check all that apply)?

- ○ Romantic Partner
- ○ Date
- ○ Family Member
- ○ Stranger
- ○ Someone else

11. Has a parent, romantic partner, or family member repeatedly ridiculed you, put you down, ignored you, or told you were no good?

No _____ Yes _____

If yes, how many times? 1 _____, 2-4 _____, 5-10 _____, more than 10_____

If yes, how old were you the most recent time it occurred (in years)?

_____

If yes, what was the relationship of the person who did this to you (Check all that apply)?

- ○ Parent
- ○ Romantic Partner
- ○ Family Member
- ○ Someone else

12. Other than the experiences already covered, has anyone ever <u>threatened</u> you with a weapon like a knife or gun?

No _____ Yes _____

If yes, how many times? 1 _____ , 2-4 _____ , 5-10 _____, more than 10_____

If yes, how old were you the most recent time it occurred (in years)?

_____

13. Have you ever been in any other situation where you were seriously injured or your life was in danger (e.g., involved in military combat or living in a war zone)?

No_____ Yes_____

If yes, how old were you the most recent time it occurred (in years)?

_____

14. Have you ever been in any other situation that was extremely frightening or horrifying, or one in which you felt extremely helpless, that you haven't reported?

No_____ Yes_____

If yes, how old were you the most recent time it occurred (in years)? _____

PCL-C

(Weathers, Litz, Huska, & Keane, 1994)

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, check the box to indicate how much you have been bothered by that problem *in the last month*.

Response:	**Not at all (1)**	**A little bit (2)**	**Moderately (3)**	**Quite a bit (4)**	**Extremely (5)**
Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience from the past?					
Repeated, disturbing *dreams* of a stressful experience from the past?					
Suddenly *acting* or *feeling* as if a stressful experience *were happening again* (as if you were reliving it)?					
Feeling *very upset* when *something reminded* you of a stressful experience from the past?					
Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful experience from the past?					
Avoid *thinking about* or *talking about* a stressful experience from the past or avoid *having feelings* related to it?					

Avoid *activities* or *situations* because *they remind you* of a stressful experience from the past?					
Trouble *remembering important parts* of a stressful experience from the past?					
Loss of *interest in things that you used to enjoy?*					
Feeling *distant* or *cut off* from other people?					
Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					
Feeling as if your *future* will somehow be *cut short*?					
Trouble *falling* or *staying asleep*?					
Feeling *irritable* or having *angry outbursts*?					
Having *difficulty concentrating*?					
Being *"super alert"* or watchful on guard?					
Feeling *jumpy* or easily startled?					

MSPSS

(Zimet, Dahlem, Zimet & Farley, 1988)

Instructions: The next set of questions asks you to say how you feel about the people around you. We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**
Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree**
Circle the "4" if you are **Neutral**
Circle the "5" if you **Mildly Agree**
Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

	Very Strongly Disagree	**Strongly Disagree**	**Mildly Disagree**	**Neutral**	**Mildly Agree**	**Strongly Agree**	**Very Strongly Agree**
There is a special person who is around when I am in need.	1	2	3	4	5	6	7
There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
My family really tries to help me.	1	2	3	4	5	6	7
I get the emotional help and support I need from my family.	1	2	3	4	5	6	7

I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
My friends really try to help me.	1	2	3	4	5	6	7
I can count on my friends when things go wrong.	1	2	3	4	5	6	7
I can talk about my problems with my family.	1	2	3	4	5	6	7
I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
My family is willing to help me make decisions.	1	2	3	4	5	6	7
I can talk about my problems with my friends.	1	2	3	4	5	6	7

EQ

(Baron-Cohen & Wheelwright, 2004)

Instructions: The next set of questions asks you to describe yourself. Please read each of the following 60 statements very carefully and rate how strongly you agree or disagree with them by checking your answer. There are no "right" or "wrong" answers.

	Strongly Disagree	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
I can easily tell if someone else wants to enter a conversation.				
I prefer animals to humans.				
I try to keep up with the current trends and fashions.				
I find it difficult to explain to others things that I understand easily, when they don't understand it first time.				
I dream most nights.				
I really enjoy caring for other people.				
I try to solve my own problems rather than discussing them with others.				
I find it hard to know what to do in a social situation.				
I am at my best first thing in the morning.				
People often tell me that I went too far in driving my point home in a discussion.				
It doesn't bother me too much if I am late meeting a friend.				
Friendships and relationships are just too difficult, so I tend not to bother with them.				
I would never break a law, no matter how minor.				
I often find it difficult to judge if something is rude or polite.				
In a conversation, I tend to focus on my own thoughts rather than on what my listener might be thinking.				
I prefer practical jokes to verbal				

humour.				
I live life for today rather than the future.				
When I was a child, I enjoyed cutting up worms to see what would happen.				
I can pick up quickly if someone says one thing but means another.				
I tend to have very strong opinions about morality.				
It is hard for me to see why some things upset people so much.				
I find it easy to put myself in somebody else's shoes.				
	Strongly Disagree	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
I think that good manners are the most important thing a parent can teach their child.				
I like to do things on the spur of the moment.				
I am good at predicting how someone will feel.				
I am quick to spot when someone in a group is feeling awkward or uncomfortable.				
If I say something that someone else is offended by, I think that that's their problem, not mine.				
If anyone asked me if I liked their haircut, I would reply truthfully, even if I didn't like it.				
I can't always see why someone should have felt offended by a remark.				
People often tell me that I am very unpredictable.				
I enjoy being the centre of attention at any social gathering.				
Seeing people cry doesn't really upset me.				
I enjoy having discussions about				

politics.				
I am very blunt, which some people take to be rudeness, even though this is unintentional.				
I don't tend to find social situations confusing.				
Other people tell me I am good at understanding how they are feeling and what they are thinking.				
When I talk to people, I tend to talk about their experiences rather than my own.				
It upsets me to see an animal in pain.				
I am able to make decisions without being influenced by people's feelings.				
I can't relax until I have done everything I had planned to do that day.				
I can easily tell if someone else is interested or bored with what I am saying.				
I get upset if I see people suffering on news programs.				
Friends usually talk to me about their problems as they say that I am very understanding.				
I can sense if I am intruding, even if the other person doesn't tell me.				
I often start new hobbies but quickly become bored with them and move on to something else.				
People sometimes tell me that I have gone too far with teasing.				
I would be too nervous to go on a big roller coaster.				
Other people often say that I am insensitive, though I don't always see why.	**Strongly Disagree**	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
If I see a stranger in a group, I think that it is up to them to make an effort to				

join in.				
I usually stay emotionally detached when watching a film.				
I like to be very organized in day-to-day life and often make lists of the chores I have to do.				
I can tune in to how someone else feels rapidly and intuitively.				
I don't like to take risks.				
I can easily work out what another person might want to talk about.				
I can tell if someone is masking their true emotion.				
Before making a decision I always weigh up the pros and cons.				
I don't consciously work out the rules of social situations.				
I am good at predicting what someone will do.				
I tend to get emotionally involved with a friend's problems.				
I can usually appreciate the other person's viewpoint, even if I don't agree with it.				

SAQ

(Maercker, & Müller, 2004)

Instructions:

The next set of questions asks how you other people's reaction to you when they found out about the time you experienced violence caused by another person. Please read each of the following 16 statements very carefully and rate how strongly you agree or disagree with them by checking your answer. There are no "right" or "wrong" answers.

	Totally Disagree 0	**1**	**2**	**3**	**4**	**Totally Agree 5**
Most people cannot understand what I went through						
Somehow I am no longer a normal member of society since the incident						
The people where I live respect me more since the incident						
There is not enough sympathy for what happened to me						
The only people who really understand me are those who have been through something similar						
My family finds my reaction to the incident to be exaggerated						
Most people cannot imagine how difficult it is simply to continue with "normal" daily life						

My experiences are underestimated in my family						
My family feels that they have to protect me						
My family feels uncomfortable talking about my experiences						
My family showed a lot of understanding for my state after the incident						
My friends feel sympathy for what happened to me						
The reactions of my acquaintances were helpful						
Many people offered their help in the first few days after the incident						
Important figures of public life in my place of residence (e.g. mayor, priest) expressed their sympathy for me after the incident						
My boss/superior showed full understanding for any absence from work						

ERNS

(Orsillo, Theodore-Oklota, Luterek, & Plumb, 2007)

Instructions: The next set of questions asks you about your feelings. Please read each of the following 62 statements very carefully and rate how typical that statement is for you by checking your answer. There are no "right" or "wrong" answers.

1 _ Not at all typical of me
2 _ A little typical of me
3 _ Somewhat typical of me
4 _ Very typical of me
5 _ Entirely typical of me

Please note, we are NOT asking about how likely you would be to show these feelings to other people. Instead, we are asking how you would feel inside. Please keep this in mind as you read each item.

	Not at all typical of me	**A little typical of me**	**Somewhat typical of me**	**Very typical of me**	**Entirely typical of me**
	1	**2**	**3**	**4**	**5**
Participating in my favorite activities brings me pleasure.					
I would feel sad if someone special to me died.					
I am able to feel a wide range of emotions (e.g., happiness, sadness, anger, and fear).					
I get angry when someone treats me badly.					
I feel joy when great things happen for me.					
I become angry when someone has done something to					

hurt me.					
Even after a significant loss, I don't have feelings of sadness.					
I feel excited before big events.					
I don't experience loving feelings.					
I care deeply for the important people in my life.					
Even when I am doing things that matter to me, I don't feel fulfilled.					
If a loved one was in danger, I would be scared.					
When I see 2 people who are truly in love with each other, I feel touched.					
The death of a loved one would deeply affect me.					
Some activities I do bring me a real adrenaline rush.					
I get angry if someone threatens me.					
I am amused when I watch a funny movie.					
I feel proud when I am able to do something difficult.					
I feel cut off from my emotions.					
Certain movies can					

make me feel sad.					
I cannot feel excitement.					
I feel happy when things turn out better than I expect.					
In situations when other people have strong emotional responses, I don't feel anything at all.					
There are certain emotions that I cannot feel.					
I get enjoyment out of activities or hobbies that are important to me.					
I think of myself as a very emotional person.					
	Not at all typical of me	**A little typical of me**	**Somewhat typical of me**	**Very typical of me**	**Entirely typical of me**
	1	**2**	**3**	**4**	**5**
I have a hard time feeling close to people, even my friends or family.					
I feel like I am emotionally numb.					
I feel afraid when I am in dangerous situations.					
I get really annoyed when someone hassles me.					
I cannot feel sadness.					
A good joke can					

make me feel amused.					
Losing an important relationship would make me feel sad.					
I get angry if I don't get something I really want and deserve.					
I would be afraid if I was being threatened.					
I feel sad when I am separated from someone I care about.					
There are some positive emotions that I rarely feel, even when there is reason to feel them.					
I don't get angry.					
I experience tender feelings for my loved ones.					
I don't feel connected to the important people in my life.					
It is difficult to surprise me.					
There are some negative emotions that I rarely feel even when there is reason to feel them.					
Hearing stories of other people losing a loved one makes me feel sad.					
I feel somewhat					

nervous in new, unfamiliar situations.					
I feel closeness when I share a special experience with another person.					
I feel sad when things turn out badly.					
I get annoyed when I am insulted.					
It is very hard to push my buttons.					
When someone insults me, I feel hurt.					
I am happy when someone pleasantly surprises me.					
I have a hard time feeling angry, even when there are reasons for me to feel that way.					
I am unable to feel joy.					
I feel passionate about some things. (					
I feel sad when I don't get something I really want and deserve.					
I feel affection during special moments with my friends or family.					
I feel touched when someone goes out of his or her way to					

help me.					
I feel tense when I watch suspenseful movies.					
I have a hard time feeling compassion for people who are in need.					
I get angry if someone criticizes me.					
I feel satisfied when I reach an important goal.					
I feel scared when I think I may be hurt or harmed in some way.					
I feel sad when someone does something to hurt me.					

Participant Feedback Script and Questions

The following questions will be asked orally of each participant once they complete the assessments. Responses will be written down by the student researcher.

Introduction to Questions:

Thank you for taking the time to complete the survey. I would now like to ask you about your experiences with this process. This information will be used to inform a larger study that will examine how certain reactions to traumatic experiences influence a woman's ability to perceive social support. Any and all information that you can provide that may make this experience more inviting and streamline for others is very much appreciated.

Questions:

1) Why did you decide to participate in this research?

2) At any point, did you want to stop taking the questionnaires?
   If yes, what was your primary reason for wanting to stop?

3) Did you experience any distress while completing the questionnaires?
   If yes, on a scale from 1 to 10 how distressed were you while completing the questionnaires?
   1_____2_____3_____4

   Not at all distressing Mildly Distressing Moderately Distressing Very Distressing
   If yes, describe which section of the assessment was most distressing.
   If yes, what, if anything, would have made it less distressing for you?

4) Were any of the instructions or questions unclear on any of the questionnaires?
   If yes, what was unclear about the instructions or questions?

5) Do you believe the survey would be improved by putting the *questionnaires* in a different order?
   If yes, why?

6) Is the $10 gift card adequate compensation?

7) Is there any other form of compensation that would be just as appealing to you, for example a selection of self care products or a gift card to a particular retail establishment?

8) What recommendations would you give to someone else completing this survey?

9) What would make other survivors more interested in completing this research?

10) What additional comments do you have with regard to your experiences completing the survey?

For Additional Feedback:
If you have any additional feedback, please feel free to email me at lkjones@uncg.edu.

APPENDIX B

INSTITUTIONAL REVIEW BOARD PILOT STUDY APPROVAL

THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

OFFICE OF RESEARCH COMPLIANCE
2718 Beverly Cooper Moore and Irene Mitchell Moore
Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
336.256.1482
Web site: www.uncg.edu/orc
Federalwide Assurance (FWA) #216

To: John Young
Counsel and Ed Development
234 Curry Building

From: UNCG IRB

Authorized signature on behalf of IRB

Approval Date: 11/19/2012
Expiration Date of Approval: 11/18/2013

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Initial
Expedited Category: 7.Surveys/interviews/focus groups
Study #: 12-0388
Study Title: An Examination of Factors Influencing Perceptions of Social Support in Female Surviviors of Interpersonal Trauma

This submission has been approved by the IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

This study will examine possible factors, namely emotional numbing and empathy, which may mediate the relationship between PTSD symptoms and perceptions of social support.

Investigator's Responsibilities

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. These consent forms must be used unless the IRB hasgiven you approval to waive this requirement.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification application available at http://www.uncg.edu/orc/irb.htm). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the "Unanticipated Problem/Event" form at the same website.

CC:
Laura Jones, Counsel And Ed Development
ORC, (ORC), Non-IRB Review Contact

APPENDIX C

PILOT STUDY INFORMED CONSENT

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: *Factors influencing perceptions of social support in female survivors of interpersonal trauma*
Project Director: J. Scott Young, PhD, LPC, NCC
Student Researcher: Laura K. Jones, MS, MA, NCC

Participant's Name: _____

What is the study about?
This is a research project. The purpose of this research study is to explore factors that influence feelings of social support in women who have experienced physical and/or sexual violence as an adult.

Why are you asking me?
You are being asked to participate in this study because you are a female 18 years old or older who may have experienced some form physical or sexual violence by another person as an adult.

What will you ask me to do if I agree to be in the study?
If you agree to participate you will be asked to complete a packet of questionnaires either electronically or on paper. It should take approximately 45 minutes for you to complete the questionnaires. You will also be asked to respond to a series of questions about your experiences completing the questionnaires. You will have an opportunity to ask student researcher any questions that you may have while completing the surveys and email either the project director or student researcher directly to provide any additional comments about your experience that you feel would improve the experience for others.

Is there any audio/video recording?
There will be no audio or video recording as part of this study.

What are the dangers to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. When completing the anonymous questionnaires, some of the questions that you will be answer relate to your past experiences with violence. Some of these questions may be upsetting to you. If you feel you need assistance to work through any distress, please contact a member of the clinical staff at Family Services of the Piedmont or you can find information on local 24-hour mental health crisis lines and centers at the following:
North Carolina Department of Health and Human Services
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

You can withdraw from the study at any time.

All of your responses will be anonymous and kept confidential and stored away from any identifying information.

If you have questions, want more information or have suggestions, please contact Laura K. Jones at lkjones@uncg.edu or J. Scott Young at 336.334.3464 or jsyoung3@uncg.edu.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Compliance at UNCG toll-free at (855)-251-2351.

UNCG IRB
Approved Consent Form
Valid 11/19/12 to 11/18/13

Are there any benefits to society as a result of me taking part in this research?
The findings from this study may provide notable benefits to society. Understanding how survivors of violence experience the support of others may lead to the development of more beneficial approaches to helping survivors heal after trauma. More useful ways of helping survivors may lead to survivors needing less medication and fewer visits to health care professionals, which may in turn lead to lower health care costs for both the individual and society.

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to participants for participating in this study. You may experience potential emotional benefit of knowing you are part of a study that may promote the wellbeing of other women survivors of violence.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you for participating in this study. At the end of the study, however, you will receive a $10 gift card for your time and feedback.

How will you keep my information confidential?
All information obtained in this study is strictly confidential unless disclosure is required by law. We will not include your name or any identifiable information with any of your answers. Your consent form, which is the only identifiable information that will be collected, will be kept in a locked filing cabinet inside the student researcher's locked office on the UNCG campus. All of your responses will be stored in a password protected electronic file and will be deleted after the study is complete. All identifiable information kept in paper form will be shredded after the study is complete. We are required to keep you're your consent forms for three years, but it will also be shredded after this date.

If you choose to complete the electronic version of the survey: ***Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.***

What if I want to leave the study?
You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By signing this consent form you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By signing this form, you are agreeing that you are 18 years of age or older and are agreeing to participate in this study described to you either orally or in writing by *Laura K. Jones, MS, MA, NCC.*

Signature: _____ Date: _____

UNCG IRB
Approved Consent Form
Valid 11/9/12 to 11/8/13

APPENDIX D

PILOT STUDY INFORMATION SHEET

IRB Information Sheet

Project Title: Factors influencing perceptions of social support in female survivors of interpersonal trauma

Principal Investigator: J. Scott Young, PhD, LPC, NCC
Student Researcher: Laura K. Jones, MS, MA, NCC

APPROVED IRB
NOV 19 2012

Study Location: Family Services of the Piedmont, Greensboro, NC

What is this all about?
I am asking you to participate in this research study because you are a female 18 years old or older who has experienced some form of physical or sexual violence (e.g., partner or dating violence or sexual assault) as an adult. This research project will only take about 45 minutes and will involve you completing a packet of questionnaires either by hand or electronically on the computer and providing verbal feedback to the student researcher about your experiences completing the questionnaires.

How will this negatively affect me?
Other than the time you spend on this project there are no known or foreseeable risks involved with this study. Some of the questions, however, ask about your past experiences with interpersonal violence and should you experience any distress when answering any of the questions, you can contact a member of the clinical staff at Family Services of the Piedmont or use the following information to contact a crisis mental health center in your area:
North Carolina Department of Health and Human Services:
(*Listing of crisis mental health centers in NC and 24 hour hotlines*)
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

What do I get out of this research project?
Other than the potential emotional benefit of knowing you are part of a study that may help promote the wellbeing of trauma survivors, there are no direct benefits to participants in this study. The findings from this study, however, may provide notable benefits to society. Understanding how survivors of violence experience the support of others may lead to the development of more beneficial approaches to helping survivors heal after trauma. More useful ways of helping survivors may lead to needing less medication and fewer visits to health care professionals, which may in turn lead to lower health care costs for both the individual and society.

Will I get paid for participating?
There are no costs to you for participating in this study. At the end of the study, however, you receive a $10 gift card.

What about my confidentiality?
We will do everything possible to make sure that your information is kept confidential. We will not include your name or any identifiable information with any of your answers. All of your responses will be stored in a password protected electronic file and will be deleted after the study is complete. I you completed the pencil and paper version of the assessment your responses will be shredded after the study is complete. Consent forms will be kept, apart from all study responses, in a locked filing cabinet inside the Student Researcher's locked office on the UNCG campus. We are required to keep your consent forms for three years, but they will also be shredded after this date.

What if I do not want to be in this research study?
You do not have to be part of this project. This project is voluntary and it is up to you to decide to participate in this research project. If you agree to participate in this project you may stop participating at any time without penalty.

What if I have questions?
If you have any questions about this study, please ask the student researcher, Laura K. Jones, who will be present when you complete the assessment, or contact her at lkjones@uncg.edu. You may also contact the principal investigator, J. Scott Young, at 336.334.3464 or jsyoung3@uncg.edu . If you have concerns about how you have been treated in this study, please contact the Office of Research Compliance at 1-855-251-2351.

APPENDIX E

LETTER OF SUPPORT FROM PILOT STUDY SITE

FAMILY SERVICE
OF THE PIEDMONT INC

November 1, 2012

Calling from Greensboro,
dial 336-387-6161

Calling from High Point,
dial 336-889-6161

902 Bonner Drive
Jamestown, NC 27282
FX 336-387-9167

315 East Washington Street
Greensboro, NC 27401
FX 336-387-9167

The Slane Center
1401 Long Street
High Point, NC 27262
FX 336-387-9167

Family Resource Center
401 Taylor Avenue
High Point, NC 27260
FX 336-387-9167

Visit us on the Web at
www.SAFEandHEALTHYfamilies.com

J. Scott Young, Ph.D.
Department of Counseling and Educational Development
UNCG
P.O. Box 26170
Greensboro, NC 27402-6170

Dear Dr. Young:

Family Service of the Piedmont is committed to the optimal care and well being of sexual assault and domestic violence survivors. This letter is to provide permission for Laura K. Jones, student researcher, to have women at our center complete surveys, conduct follow-up interviews, analyze the data, and present the findings as part of her dissertation research. My staff and I are committed to working with the researcher to develop the appropriate instruments and approaches to data collection. I understand the project proposal will be reviewed and approved by UNCG Institutional Review Board for Research Involving Human Participants prior to data collection.

If you need further information in support of this project, please contact me at 333-387-6161 x1120.

Sincerely,

Thomas F. Campbell
President/CEO
Family Service of the Piedmont
Washington Street Building
315 East Washington Street
Greensboro, NC 27401

Strengthening Families and Children Since 1940

ALLIANCE
United Way
COA
CONSUMER CREDIT COUNSELING SERVICE

APPENDIX F

RECRUITMENT LETTER TO COALITIONS

Exploring Perceptions of Social Support in Survivors of Sexual and Partner Violence

Proposed Dissertation Research
Laura K. Jones, MS, MA, NCC
Doctoral Candidate
The University of North Carolina at Greensboro
Department of Counseling and Educational Development
Phone: 423.794.8274 Email: lkjones@uncg.edu

Practitioners and researchers alike recognize that positive social support is one of the most important factors in helping survivors of sexual and partner violence heal and regain a sense of wellbeing following trauma. Interestingly, however, researchers measure social support solely through self-report questionnaires, or in other words, simply by asking the survivor how much they feel supported or how many support persons they have in their life. Nevertheless, following a traumatic experience, a survivor's body often shifts into survival mode, causing the woman's physiology to undergo changes. These changes are the basis for some of the common reactions we see in survivors, such as hypervigilance, jumpiness, and emotional numbing. Such changes may influence the way survivors interact with other people around them. For example researchers have shown that the emotional numbing that a survivor experiences influences her ability to give, and more importantly receive, empathy. This clearly has very important implications for how we work with and support survivors but also the way we measure social support. If survivors cannot easily perceive the care and connection of others, she may very well also have difficulty feeling the social support that is actually available and being offered to her.

This is the very question that I will be addressing in my research; do survivors have difficulty accurately perceiving the positive support of others. Given the findings from this investigation, I hope to be able to suggest more effective means of empowering survivors and helping survivors to accurately perceive and find comfort in the emotional and practical support that is available to them, whether that be through friends and family or practitioners such as yourself.

In order to participate, the survivor must be a female 18 years old or older who has experienced some form of sexual or partner violence since the age of 16. She will be asked to complete a series of questionnaires either on-line or in paper-and-pencil format that will take approximately 30 minutes. The proposed questionnaires ask about her experiences with social support, emotional numbing, posttraumatic stress, empathy and some background questions such as her age and level of education. Copies of the questionnaires can be provided. All of her individual responses will be anonymous and remain confidential, and the study will be approved by the University of North Carolina at Greensboro's research ethics board, the Institutional Review Board. Participants will be provided a financial incentive for participating, namely a $10 gift card.

Upon completing my study, I plan to make my findings available to the Coalition and agencies that work directly with survivors in a format that is practical and useful in the daily support of survivors. I would also like to give back to agencies and the Coalition for their support and involvement in any way I can, such as through providing free workshops or classes for staff or survivors or by assisting in outreach efforts. I would appreciate hearing your ideas on how I may be able to show support for your organization. Below is a list of my specific areas of training:

- How trauma effects the body and the brain
- Healing trauma through the body
- Preventing and alleviating vicarious trauma in practitioners
- Smoking cessation (including working with pregnant and postpartum women)
- Body image and eating disorders
- Yoga for wellbeing or trauma recovery

APPENDIX G

REVISED FULL STUDY INSTRUMENTATION

Welcome to the survey!

Thank you for your interest and willingness to participate. The information you provide is very important and may help to create better services for women survivors such as yourself.

Please complete this survey in a setting that you feel is safe and comfortable and provides you with the privacy to complete the questions openly and honestly.

When asked what advice she would give a fellow survivor completing this survey, one survivor responded,

> "*Answer as honestly as possible. If we all work together toward a common goal, we can possibly make a difference*."
> ~ A Fellow Survivor

All of Your Responses Will Remain Anonymous and Confidential!

Participant ID: _____

Demographic Information

Instructions:
Please respond to the following questions to the best of your ability. You may skip questions and return to them at a later time.

Your time and information are very much appreciated!

All Responses will Remain Confidential*

1. **Gender:**
   - ○ Female
   - ○ Male
   - ○ Other:_____

2. **Age:** *(In Years)*

   _____

3. **How would you describe your Race/Ethnicity:** *(choose only one)*
   - ○ Hispanic or Latino
   - ○ White or Caucasian
   - ○ Black or African American
   - ○ American Indian or Alaska Native
   - ○ Native Hawaiian or Other Pacific Islander
   - ○ Asian
   - ○ Middle Eastern
   - ○ Two or More Races
   - ○ Other:_____

4. **What is the highest level of education you have earned:** *(choose only one)*

- ○ Grade school
- ○ Some high school
- ○ Graduated high school
- ○ Trade school
- ○ Some college
- ○ BS/BA
- ○ Some graduate school
- ○ MS/MA/EDS
- ○ PhD
- ○ JD/MD
- ○ Other:_____

5. **Is English your primary language?**

- ○ Yes
- ○ No

6. ***If English is NOT your primary language*, On a scale of 1 to 10 how comfortable do you feel with the English language:** *(Please Circle a Number Below)*

1=Not at all Comfortable 10= Extremely Comfortable

1 2 3 4 5 6 7 8 9 10

7. **How would you describe your sexual-affectional orientation?**

- ○ Heterosexual or straight
- ○ Gay or Lesbian
- ○ Bisexual
- ○ Other:_____

8. **Current relationship status:** *(choose only one)*
   - ○ Single, never married
   - ○ Married or domestic partnership
   - ○ Dating, Living together
   - ○ Dating, Not Living Together
   - ○ Separated/Divorced
   - ○ Widowed
   - ○ Other:_____

9. **Adding together income from all sources, what was your total household income in 2012:**
   - ○ Under $10,000
   - ○ $10,000 – $24,999
   - ○ $25,000 - $49,999
   - ○ $50,000 - $74,999
   - ○ $75,000 - $100,000
   - ○ Over $100,000

10. **Have you ever had any counseling, psychological or psychiatric treatment?**
    - ○ Yes
    - ○ No

11. **All together, how many times have you attended counseling, psychotherapy or psychiatric services?**
    - ○ Less than 3 times
    - ○ 3-5 times
    - ○ 5-10 times
    - ○ More than 10 times

12. How long has it been since your last visit to a counselor, psychologist, clinical social worker, or psychiatrist?

- ○ Days
- ○ Weeks
- ○ Months
- ○ Years

13. Do (did) you consider your counselor, psychologist, clinical social worker or psychiatrist a primary source of social support?

- ○ Yes
- ○ No

14. Are you currently taking any medications for any psychological (i.e., mental) concerns?

- ○ Yes
- ○ No

15. *<u>If YES, you are taking medication</u>*, please list the medications: (correct spelling is not necessary)

_____

_____

16. Did you ever seek counseling, psychotherapy or psychiatric services specifically for any form of physical or sexual violence that you experienced since the age of 16 years?

- ○ Yes
- ○ No

CES-D 10
(Andresen, Malmgren, Carter, & Patrick, 1994)

Instructions:
Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week by checking the appropriate box for each question.

	Rarely or none of the time (less than 1 day)	**Some or a little of the time (1-2 days)**	**Occasionally or a moderate amount of time (3-4 days)**	**All of the time (5-7 days)**
I was bothered by things that usually don't bother me.				
I had trouble keeping my mind on what I was doing				
I felt depressed.				
I felt that everything I did was an effort.				
I felt hopeful about the future.				
I felt fearful.				
My sleep was restless.				
I was happy.				
I felt lonely.				
I could not "get going."				

SLEQ- Modified[1]

(Adapted from: Goodman, Corcoran, Turner, Yuan, & Green, 1998)

Instructions:
The items listed below refer to events that may have taken place at any point in your entire life, including early childhood. Please answer the questions to the best of your ability. If you find any of the questions upsetting or distressing and feel you need assistance or would like to speak with someone to work through any distress, you can use the following information to contact a crisis mental health center in your area:

North Carolina Department of Health and Human Services:
(L*isting of crisis mental health centers in NC and 24 hour hotlines*)
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

Please remember that your responses will remain confidential and anonymous!

1. Have you ever had a life-threatening illness?

- ○ Yes
- ○ No

2. Were you ever in a life-threatening accident?

- ○ Yes
- ○ No

3. Was physical force or a weapon ever used against you in a robbery or mugging?

- ○ Yes
- ○ No

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

[1] Adapted with permission from Lisa Goodman, Ph. D., 2013

4. **Has an immediate family member, spouse or intimate partner, or <u>very close</u> friend died because of accident, homicide, or suicide?**

   - ○ Yes
   - ○ No

   If yes, approximately how old were you *the most recent time* it occurred (in years)?

   _____

5. **Have you had a miscarriage?**

   - ○ Yes
   - ○ No

   If yes, approximately how old were you *the most recent time* it occurred (in years)?

   _____

6. **As a <u>CHILD or ADOLESCENT</u> (*under* the age of 16 years) did anyone (parent, other family member, spouse or intimate partner, stranger or someone else) ever <u>force</u> you to have intercourse, or to have oral or anal sex against your wishes, or when you were helpless, such as being asleep?**

   - ○ Yes
   - ○ No

   If yes, how many times?

   - ○ 1 time
   - ○ 2-4 times
   - ○ 5-10 times
   - ○ More than 10 times

   If yes, approximately how old were you *the most recent time* it occurred (in years)?

   _____

If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

- ○ Spouse or Intimate Partner
- ○ Date
- ○ Family Member
- ○ Stranger
- ○ Someone else: _____

7. As an <u>ADULT</u> (*over* the age of 16 years), has anyone (family member, spouse or intimate partner, stranger or someone else) ever <u>forced</u> you to have intercourse, or to have oral or anal sex against your wishes, or when you were helpless, such as being asleep or intoxicated?

- ○ Yes
- ○ No

If yes, how many times?

- ○ 1 time
- ○ 2-4 times
- ○ 5-10 times
- ○ More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

- ○ Spouse or Intimate Partner
- ○ Date
- ○ Family Member

- Stranger
- Someone else: _____

8. *<u>Other than experiences mentioned in earlier questions</u>*, has anyone ever touched private parts of your body, made you touch their body, or tried to make you to have sex against your wishes?

- Yes
- No

If yes, how many times?

- 1 time
- 2-4 times
- 5-10 times
- More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

- Spouse or Intimate Partner
- Date
- Family Member
- Stranger
- Someone else: _____

9. <u>When you were a Child</u>, did a parent, caregiver or other person ever slap you repeatedly, beat you, or otherwise attack or harm you?

- Yes
- No

If yes, how many times?

- 1 time
- 2-4 times
- 5-10 times
- More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

10. <u>As an ADULT</u>, have you ever been kicked, beaten, slapped around or otherwise physically harmed by a spouse or intimate partner, date, family member, stranger, or someone else?

- Yes
- No

If yes, how many times?

- 1 time
- 2-4 times
- 5-10 times
- More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

- Spouse or Intimate Partner
- Date
- Family Member
- Stranger
- Someone else: _____

11. Has a parent, spouse or intimate partner, date or family member repeatedly ridiculed you, put you down, ignored you, or told you were no good?

- Yes
- No

If yes, how many times?

- 1 time
- 2-4 times
- 5-10 times
- More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

If yes, what was the relationship of the person who did this to you? (***Check all that apply***)

- Spouse or Intimate Partner
- Date
- Family Member
- Someone else: _____

12. Other than the experiences already covered, has anyone ever <u>threatened</u> you with a weapon (this includes any object that you perceived as a weapon)?

- Yes
- No

If yes, how many times?

- 1 time
- 2-4 times
- 5-10 times
- More than 10 times

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

13. Have you ever been in any other situation where you were seriously injured or your life was in danger (e.g., involved in military combat or living in a war zone)?

- ○ Yes
- ○ No

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

14. Have you ever been in any other situation that was extremely frightening or horrifying, or one in which you felt extremely helpless, that you haven't reported?

- ○ Yes
- ○ No

If yes, approximately how old were you *the most recent time* it occurred (in years)?

_____

WEB Scale[1]

(*Developed by Paige Hall Smith, University of North Carolina at Greensboro*)

Here are 10 statements that other women have used to describe their lives with their partners. Please read each statement and circle the answer that best describes how much you agree or disagree with each**.**

Answer the questions thinking about your current (or your most recent partner).

Item	Strongly Disagree	Somewhat Disagree	Disagree A Little	Agree A Little	Somewhat Agree	Strongly Agree
He makes me feel unsafe even in my own home.	1	2	3	4	5	6
I feel ashamed of the things he does to me.	1	2	3	4	5	6
I try not to rock the boat because I am afraid of what he might do.	1	2	3	4	5	6
I feel like I am programmed to react a certain way to him.	1	2	3	4	5	6
I feel like he keeps me prisoner.	1	2	3	4	5	6
He makes me feel like I have no control over my life, no power, no protection.	1	2	3	4	5	6
I hide the truth from others because I am afraid not to.	1	2	3	4	5	6
I feel owned and controlled by him.	1	2	3	4	5	6
He can scare me without laying a hand on me.	1	2	3	4	5	6
He has a look that goes straight through me and terrifies me.	1	2	3	4	5	6

For the three statements below think about <u>any</u> partner you have had since the age of 16, <u>OTHER THAN</u> your current or most recent partner.

Item	Disagree	Agree
I have had a partner who made me feel unsafe even in my own home	1	2
I have had a partner who did things to me that made me feel ashamed	1	2
I have hid the truth from others about my relationship because I was afraid not to.	1	2

[1]Reprinted, 2013, with permission from Paige Hall Smith, Ph. D. The final three questions are additions to the original WEB Scale added by Dr. Paige Hall Smith.

PCL-C

(Weathers, Litz, Huska, & Keane, 1994)

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, check the box to indicate how much you have been bothered by that problem *in the last month*.

Response:	**Not at all (1)**	**A little bit (2)**	**Moderately (3)**	**Quite a bit (4)**	**Extremely (5)**
Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience from the past?					
Repeated, disturbing *dreams* of a stressful experience from the past?					
Suddenly *acting* or *feeling* as if a stressful experience *were happening again* (as if you were reliving it)?					
Feeling *very upset* when *something reminded* you of a stressful experience from the past?					
Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful experience from the past?					
Avoid *thinking about* or *talking about* a stressful experience from the past or avoid *having feelings*					

related to it?					
Avoid *activities* or *situations* because *they remind you* of a stressful experience from the past?					
Trouble *remembering important parts* of a stressful experience from the past?					
Loss of *interest in things that you used to enjoy?*					
Feeling *distant* or *cut off* from other people?					
Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					
Feeling as if your *future* will somehow be *cut short*?					
Trouble *falling* or *staying asleep*?					
Feeling *irritable* or having *angry outbursts*?					
Having *difficulty concentrating*?					
Being *"super alert"* or watchful on guard?					
Feeling *jumpy* or easily startled?					

MSPSS

(Zimet, Dahlem, Zimet & Farley, 1988)

Instructions: The next set of questions asks you to say how you feel about the people around you. We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**
Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree**
Circle the "4" if you are **Neutral**
Circle the "5" if you **Mildly Agree**
Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

	Very Strongly Disagree	**Strongly Disagree**	**Mildly Disagree**	**Neutral**	**Mildly Agree**	**Strongly Agree**	**Very Strongly Agree**
There is a special person who is around when I am in need.	1	2	3	4	5	6	7
There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
My family really tries to help me.	1	2	3	4	5	6	7

I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
My friends really try to help me.	1	2	3	4	5	6	7
I can count on my friends when things go wrong.	1	2	3	4	5	6	7
I can talk about my problems with my family.	1	2	3	4	5	6	7
I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
There is a special	1	2	3	4	5	6	7

person in my life who cares about my feelings.							
My family is willing to help me make decisions.	1	2	3	4	5	6	7
I can talk about my problems with my friends.	1	2	3	4	5	6	7

EQ

(Baron-Cohen & Wheelwright, 2004)

Instructions: The next set of questions asks you to describe yourself. Please read each of the following 60 statements very carefully and rate how strongly you agree or disagree with them by checking your answer. There are no "right" or "wrong" answers.

	Strongly Disagree	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
I can easily tell if someone else wants to enter a conversation.				
I prefer animals to humans.				
I try to keep up with the current trends and fashions.				
I find it difficult to explain to others things that I understand easily, when they don't understand it first time.				
I dream most nights.				
I really enjoy caring for other people.				
I try to solve my own problems rather than discussing them with others.				
I find it hard to know what to do in a social situation.				
I am at my best first thing in the morning.				
People often tell me that I went too far in driving my point home in a discussion.				
It doesn't bother me too much if I am late meeting a friend.				
Friendships and relationships are just too difficult, so I tend not to bother with them.				
I would never break a law, no matter how minor.				
I often find it difficult to judge if something is rude or polite.				
In a conversation, I tend to focus on my own thoughts rather than on what my listener might be thinking.				
I prefer practical jokes to verbal humour.				

I live life for today rather than the future.				
When I was a child, I enjoyed cutting up worms to see what would happen.				
I can pick up quickly if someone says one thing but means another.				
I tend to have very strong opinions about morality.				
It is hard for me to see why some things upset people so much.				
I find it easy to put myself in somebody else's shoes.				
	Strongly Disagree	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
I think that good manners are the most important thing a parent can teach their child.				
I like to do things on the spur of the moment.				
I am good at predicting how someone will feel.				
I am quick to spot when someone in a group is feeling awkward or uncomfortable.				
If I say something that someone else is offended by, I think that that's their problem, not mine.				
If anyone asked me if I liked their haircut, I would reply truthfully, even if I didn't like it.				
I can't always see why someone should have felt offended by a remark.				
People often tell me that I am very unpredictable.				
I enjoy being the centre of attention at any social gathering.				
Seeing people cry doesn't really upset me.				
I enjoy having discussions about politics.				
I am very blunt, which some people take to be rudeness, even though this is				

unintentional.				
I don't tend to find social situations confusing.				
Other people tell me I am good at understanding how they are feeling and what they are thinking.				
When I talk to people, I tend to talk about their experiences rather than my own.				
It upsets me to see an animal in pain.				
I am able to make decisions without being influenced by people's feelings.				
I can't relax until I have done everything I had planned to do that day.				
I can easily tell if someone else is interested or bored with what I am saying.				
I get upset if I see people suffering on news programs.				
Friends usually talk to me about their problems as they say that I am very understanding.				
I can sense if I am intruding, even if the other person doesn't tell me.				
I often start new hobbies but quickly become bored with them and move on to something else.				
People sometimes tell me that I have gone too far with teasing.				
I would be too nervous to go on a big roller coaster.				
Other people often say that I am insensitive, though I don't always see why.	**Strongly Disagree**	**Slightly Disagree**	**Slightly Agree**	**Strongly Agree**
If I see a stranger in a group, I think that it is up to them to make an effort to join in.				
I usually stay emotionally detached when watching a film.				
I like to be very organized in day-to-day life and often make lists of the chores I				

have to do.				
I can tune in to how someone else feels rapidly and intuitively.				
I don't like to take risks.				
I can easily work out what another person might want to talk about.				
I can tell if someone is masking their true emotion.				
Before making a decision I always weigh up the pros and cons.				
I don't consciously work out the rules of social situations.				
I am good at predicting what someone will do.				
I tend to get emotionally involved with a friend's problems.				
I can usually appreciate the other person's viewpoint, even if I don't agree with it.				

SAQ

(Maercker, & Müller, 2004)

Instructions:

The next set of questions asks you about other people's reactions to you following your experiences of interpersonal violence. Please read each of the following 16 statements very carefully and rate how strongly you agree or disagree with them by checking your answer. There are no "right" or "wrong" answers.

	Totally Disagree 0	**1**	**2**	**3**	**4**	**Totally Agree 5**
Most people cannot understand what I went through						
Somehow I am no longer a normal member of society since the incident						
The people where I live respect me more since the incident						
There is not enough sympathy for what happened to me						
The only people who really understand me are those who have been through something similar						
My family finds my reaction to the incident to be exaggerated						
Most people cannot imagine how difficult it is simply to continue with "normal" daily life						
My experiences are underestimated in my family						
My family feels that						

they have to protect me						
My family feels uncomfortable talking about my experiences						
My family showed a lot of understanding for my state after the incident						
My friends feel sympathy for what happened to me						
The reactions of my acquaintances were helpful						
Many people offered their help in the first few days after the incident						
Important figures of public life in my place of residence (e.g. mayor, priest) expressed their sympathy for me after the incident						
My boss/superior showed full understanding for any absence from work						

ERNS

(Orsillo, Theodore-Oklota, Luterek, & Plumb, 2007)

Instructions: The next set of questions asks you about your feelings. Please read each of the following 62 statements very carefully and rate how typical that statement is for you by checking your answer. There are no "right" or "wrong" answers.

1 _ Not at all typical of me
2 _ A little typical of me
3 _ Somewhat typical of me
4 _ Very typical of me
5 _ Entirely typical of me

Please note, we are NOT asking about how likely you would be to show these feelings to other people. Instead, we are asking how you would feel inside. Please keep this in mind as you read each item.

	Not at all typical of me	**A little typical of me**	**Somewhat typical of me**	**Very typical of me**	**Entirely typical of me**
	1	**2**	**3**	**4**	**5**
Participating in my favorite activities brings me pleasure.					
I would feel sad if someone special to me died.					
I am able to feel a wide range of emotions (e.g., happiness, sadness, anger, and fear).					
I get angry when someone treats me badly.					
I feel joy when great things happen for me.					
I become angry when someone has done something to hurt me.					
Even after a significant loss, I don't have feelings of					

sadness.					
I feel excited before big events.					
I don't experience loving feelings.					
I care deeply for the important people in my life.					
Even when I am doing things that matter to me, I don't feel fulfilled.					
If a loved one was in danger, I would be scared.					
When I see 2 people who are truly in love with each other, I feel touched.					
The death of a loved one would deeply affect me.					
Some activities I do bring me a real adrenaline rush.					
I get angry if someone threatens me.					
I am amused when I watch a funny movie.					
I feel proud when I am able to do something difficult.					
I feel cut off from my emotions.					
	Not at all typical of me	**A little typical of me**	**Somewhat typical of me**	**Very typical of me**	**Entirely typical of me**
	1	**2**	**3**	**4**	**5**
Certain movies can make me feel sad.					
I cannot feel excitement.					
I feel happy when things turn out better than I					

expect.					
In situations when other people have strong emotional responses, I don't feel anything at all.					
There are certain emotions that I cannot feel.					
I get enjoyment out of activities or hobbies that are important to me.					
I think of myself as a very emotional person.					
I have a hard time feeling close to people, even my friends or family.					
I feel like I am emotionally numb.					
I feel afraid when I am in dangerous situations.					
I get really annoyed when someone hassles me.					
I cannot feel sadness.					
A good joke can make me feel amused.					
Losing an important relationship would make me feel sad.					
I get angry if I don't get something I really want and deserve.					
I would be afraid if I was being threatened.					
I feel sad when I am separated from someone I care about.					
There are some positive emotions that I rarely feel,					

even when there is reason to feel them.					
I don't get angry.					
I experience tender feelings for my loved ones.					
I don't feel connected to the important people in my life.					
It is difficult to surprise me.					
There are some negative emotions that I rarely feel even when there is reason to feel them.					
Hearing stories of other people losing a loved one makes me feel sad.					
	Not at all typical of me	**A little typical of me**	**Somewhat typical of me**	**Very typical of me**	**Entirely typical of me**
	1	**2**	**3**	**4**	**5**
I feel somewhat nervous in new, unfamiliar situations.					
I feel closeness when I share a special experience with another person.					
I feel sad when things turn out badly.					
I get annoyed when I am insulted.					
It is very hard to push my buttons.					
When someone insults me, I feel hurt.					
I am happy when someone pleasantly surprises me.					

I have a hard time feeling angry, even when there are reasons for me to feel that way.					
I am unable to feel joy.					
I feel passionate about some things. (					
I feel sad when I don't get something I really want and deserve.					
I feel affection during special moments with my friends or family.					
I feel touched when someone goes out of his or her way to help me.					
I feel tense when I watch suspenseful movies.					
I have a hard time feeling compassion for people who are in need.					
I get angry if someone criticizes me.					
I feel satisfied when I reach an important goal.					
I feel scared when I think I may be hurt or harmed in some way.					
I feel sad when someone does something to hurt me.					

Supplementary Survey Questions for NCCASA and NCCADV

1) **Have you received any services or assistance from any of the following in the state of North Carolina? (please check all that apply)**

o A rape crisis or sexual assault center

o Domestic violence service provider or shelter

o None of the above

2) **What have been the most beneficial services you have received at your local rape crisis or sexual assault center?**

3) **What have been the most beneficial services you have received at your local domestic violence service provider or shelter?**

4) What services do you wish you would have received that you did not?

You have completed the survey.

Thank you for your time and valuable contributions!

If you have questions, want more information or have suggestions, please contact Laura K. Jones at **lkjones@uncg.edu** *or J. Scott Young at 336.334.3464 or* **jsyoung3@uncg.edu** .

-The inspirational poem was included here.-

APPENDIX H

SITE RECRUITMENT LETTER

Dear Advocate,

On behalf of myself and the North Carolina Coalition Against Sexual Assault (NCCASA), I am writing to request your valuable assistance.

Social support is imperative to women facing the aftermath of interpersonal violence, such as sexual assault and partner violence. But what if some of these women, as a result of the violence they have endured, have difficulty feeling and believing in the support being offered to them. This is of considerable importance, especially to individuals such as ourselves who want nothing more than to help these women heal and find renewed strength and wellbeing.

I will begin investigating this important question (i.e., what factors may be influencing a survivor's ability to recognize and utilize available support?) in the coming months as part of my doctoral dissertation at the University of North Carolina at Greensboro's Department of Counseling and Educational Development, but I need your help!

What I am asking of the survivors:
I would like to have women 18 years and older, who have experienced some form of emotional, physical or sexual violence (sexual violence or partner violence) since the age of 16, complete a packet of questionnaires addressing social support, emotional wellbeing, and their experiences with posttraumatic stress that should take approximately 30 minutes. The questionnaires can be completed either electronically or in paper format, and the women's responses will remain anonymous and confidential. Each of the women who participate will also receive a $10 gift card for her time. All responses will be anonymous and confidential, and my research plans have been reviewed and approved by the Institutional Review Board at the University of North Carolina at Greensboro to ensure the safety of all participants.

What I am asking of you:

If you could assist in any of the following ways, or have any other ideas for how you may be able to help, I would greatly appreciate an opportunity to discuss the possibilities with you.

- If you run survivor groups or other groups that may include survivors:
  - I would be happy to visit one of the groups, introduce my research to the women and invite them to participate.
    -or -
  - You could provide informational and recruitment study flyers and either the electronic link to the online survey or paper copies of the study assessments to group members.
- If you work with individuals who may qualify:
  - Provide them with study and informational flyers and provide them with the electronic link to the online questionnaires or a hard copy of the questionnaires.
- If your organization has a listserv for survivors or that may include survivors:
  - Distribute the electronic link to the online version of the study on the listserv along with an electronic version of the study flyer.

This research has been endorsed by the North Carolina Coalition Against Sexual Assault.

If you are interested in participating, I can be contacted at 423.794.8274 or lkjones@uncg.edu. You may also contact my supervisor, J. Scott Young, at 336.334.3464 or jsyoung3@uncg.edu.

My sincerest thanks for your time and consideration.

Kindest regards,

Laura K. Jones, MS, MA, NCC
Doctoral Candidate – Counseling and Counselor Education
The University of North Carolina at Greensboro
Phone: (423) 794.8274
Email: lkjones@uncg.edu

Working together we can find ways to better serve survivors!

APPENDIX I

PARTICIPANT RECRUITMENT FLYER

~Research Opportunity~

Your participation could

Help Women Survivors of Interpersonal Violence

- Are you a woman 18 years old or older?
- Have you experienced any form of physical, emotional or sexual violence (e.g., partner, dating, or sexual violence) since you were 16 years old?

If so, you could be part of a research project that hopes to find better ways of helping women survivors of violence.

Purpose:

The purpose of this research study is to explore behavioral factors that influence feelings of social support in female survivors of interpersonal violence (i.e., emotional, physical or sexual violence) experienced since the age of 16.

What you would be asked to do:

Complete a series of questionnaires either electronically or on paper, which will take approximately 30 minutes. All of your responses will be anonymous and kept confidential!

Compensation:

You will receive a **$10 gift card** for your time.

APPROVED IRB
FEB 04 2015

Where will the study take place:

The assessments may be completed wherever you feel would be most private and confidential.

For More Information Contact:

J. Scott Young, PhD (Primary Investigator)
Professor and Chair
The University of North Carolina at Greensboro
jsyoung3@uncg.edu

****Laura K. Jones, MS, MA** (Student Researcher)
Doctoral Candidate
The University of North Carolina at Greensboro
lkjones@uncg.edu

This study has been approved by the Institutional Review Board of The University of North Carolina at Greensboro. For Questions or Concerns contact the Office of Research Compliance at UNCG toll-free at (855) 251-2351.

APPENDIX J

FULL STUDY INFORMATION SHEET

IRB Information Sheet

Project Title: *An exploration of perceived social support in female survivors of intpersersonal trauma.*

Principal Investigator: J. Scott Young, PhD, LPC, NCC

Student Researcher: Laura K. Jones, MS, MA, NCC

What is this all about?
I am asking you to participate in this research study because you are a female 18 years old or older who has experienced some form of physical, emotional, or sexual violence (e.g., partner or dating violence or sexual assault) since you were 16 years of age. This research project will only take about 30 minutes and will involve you completing a packet of questionnaires either by hand or electronically on the computer.

How will this negatively affect me?
Other than the time you spend on this project there are no known or foreseeable risks involved with this study. Some of the questions, however, ask about your past experiences with interpersonal violence and should you experience any distress when answering any of the questions, you can use the following information to contact a crisis mental health center in your area:
North Carolina Department of Health and Human Services:
(*Listing of crisis mental health centers in NC and 24 hour hotlines*)
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

What do I get out of this research project?
There are no direct benefits to participants for their participation in this study. Participants may experience an emotional benefit of knowing that you are part of a study that may help promote the wellbeing of other women survivors of violence. The findings from this study, however, may provide notable benefits to society. Understanding how survivors of violence experience the support of others may lead to the development of more beneficial approaches to helping survivors heal after trauma. More useful ways of helping survivors may lead to needing less medication and fewer visits to health care professionals, which may in turn lead to lower health care costs for both the individual and society.

Will I get paid for participating?
There are no costs to you for participating in this study. At the end of the study, however, you receive a $10 gift card.

What about my confidentiality?
We will do everything possible to make sure that your information is kept confidential. We will not include your name or any identifiable information with any of your answers. All of your responses will be stored in a password protected electronic file and will be deleted after the study is complete. If you completed the pencil and paper version of the assessment your responses will be shredded after the study is complete. You may take the questionnaires wherever they feel would be most private and confidential.

What if I do not want to be in this research study?
You do not have to be part of this project. This project is voluntary and it is up to you to decide to participate in this research project. If you agree to participate in this project you may stop participating at any time without penalty.

What if I have questions?
If you have any questions about this study, you may contact the student researcher, Laura K. Jones, at lkjones@uncg.edu, or the principal investigator, J. Scott Young, at 336.334.3464 or jsyoung3@uncg.edu . If you have concerns about how you have been treated in this study call the UNCG IRB at 1-855-251-2351.

UNCG IRB
Approved Consent Form
Valid 2/4/13 to 2/3/14

APPENDIX K

FULL STUDY INFORMED CONSENT

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: *An exploration of perceived social support in female survivors of intpersersonal trauma.*
Project Director: J. Scott Young, PhD, LPC, NCC
Student Researcher: Laura K. Jones, MS, MA, NCC

What is the study about?
This is a research project. The purpose of this research study is to explore factors that influence feelings of social support in women who have experienced physical, emotional and/or sexual violence (e.g., partner, dating and/or sexual violence) since the age of 16.

Why are you asking me?
You are being asked to participate in this study because you are a female 18 years old or older, who may have experienced some form physical, emotional or sexual violence by another person (e.g., partner, dating and/or sexual violence) since the age of 16.

What will you ask me to do if I agree to be in the study?
If you agree to participate you will be asked to complete a packet of questionnaires either electronically or on paper. It should take approximately 30 minutes for you to complete the questionnaires. You will have an opportunity to email either the project director or student researcher with any questions you may have about the study.

Is there any audio/video recording?
There will be no audio or video recording as part of this study.

What are the dangers to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. When completing the anonymous questionnaires, some of the questions that you will be answer relate to your past experiences with violence. Some of these questions may be upsetting to you. If you feel you need assistance to work through any distress, please your local 24-hour mental health crisis lines and centers at the following:
North Carolina Department of Health and Human Services
http://www.ncdhhs.gov/mhddsas/services/crisisservices/index.htm or (919) 855-4800

You can withdraw from the study at any time.

All of your responses will be anonymous and kept confidential and stored away in a password protected file. No identifying information will be collected as part of this study.

If you have questions, want more information or have suggestions, please contact Laura K. Jones at lkjones@uncg.edu or J. Scott Young at 336.334.3464 or jsyoung3@uncg.edu.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Compliance at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?
The findings from this study may provide notable benefits to society. Understanding how survivors of violence experience the support of others may lead to the development of more beneficial approaches to helping survivors heal after trauma. More useful ways of helping survivors may lead to survivors needing less medication and fewer visits to health care professionals, which may in turn lead to lower health care costs for both the individual and society.

UNCG IRB
Approved Consent Form
Valid 2/4/13 to 2/3/14

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to participants for their participation in this study. Participants may experience an emotional benefit of knowing that you are part of a study that may help promote the wellbeing of other women survivors of violence.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you for participating in this study. At the end of the study, however, you will receive a $10 gift card for your time and feedback. If you complete the paper-based survey, you will receive your gift card either from the student researcher or the representative of the organization from whom she received the survey packet. Once completing the packet you will place the survey in a sealed, anonymous envelope and place it in a confidential return address envelope at the practice site, at which time you will be given your gift card. If you complete the survey electronically, at the end of the survey you will be given an email address and asked to send an email to the student researcher to receive your electronic $10 gift card. You will not be required to give your name and the email address you use can be an anonymous address either that you regularly use or one created specifically for receiving the gift card. Either way, all of your responses will remain anonymous.

How will you keep my information confidential?
All information obtained in this study is strictly confidential unless disclosure is required by law. We will also not be collecting any identifiable information as a part of this study. If you complete the study electronically, information regarding the IP address of the computer you are using will furthermore NOT be collected. All of your responses will be stored in a password protected electronic file and will be deleted after the study is complete. All responses collected in paper form will be shredded after the study is complete.

If you choose to complete the electronic version of the survey: ***Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.***

What if I want to leave the study?
You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By agreeing to participate, you are agreeing that you read this consent, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. You are also agreeing that you are 18 years of age or older and are agreeing to participate in this study described to you either orally or in writing by *Laura K. Jones, MS, MA, NCC.*

UNCG IRB
Approved Consent Form
Valid 2/4/13 to 2/3/14

APPENDIX L

LETTERS OF SUPPORT FROM STATE COALITIONS

27 November 2012

J. Scott Young, Ph.D.
Department of Counseling and Educational Development
UNCG
P.O. Box 26170
Greensboro, NC 27402-6170

Dear Scott Young,

The North Carolina Coalition Against Sexual Assault is committed to the optimal care and wellbeing of sexual assault survivors. This letter provides permission for Laura K. Jones, student researcher, to work with the professionals and organizations represented by NCCASA in an effort to recruit women survivors to complete surveys in conjunction with her dissertation research entitled, Exploring Perceptions of Social Support in Survivors of Sexual and Domestic Violence. We are very excited about her study, which seeks to determine whether survivors, as a result of potentially experiencing the emotional numbing and decreased empathy that can occur following trauma, have difficulty accurately perceiving the positive support of others. We believe this is a valuable study because it may lead to more effective means of empowering survivors and helping them to accurately perceive and find comfort in the emotional and practical support being offered to them by agencies and practitioners such as ourselves.

My staff and I are committed to working with Laura to develop appropriate instruments and approaches to data collection as well as to assisting her in contacting and networking with the professionals whom we represent. I understand the project proposal will be reviewed and approved by UNCG Institutional Review Board for Research Involving Human Participants prior to data collection.

If you need further information in support of this project please contact me at *919-871-1015*.

Sincerely,

Monika Johnson Hostler
Executive Director
North Carolina Coalition Against Sexual Assault

North Carolina Coalition Against Sexual Assault
811 Spring Forest Road, Suite 900 Raleigh, NC 27608
Phone: (919)871-1015 Fax: (919)871-5895 nccasa@nccasa.org

NORTH CAROLINA COALITION AGAINST DOMESTIC VIOLENCE
30 Years of Service
1981-2011

123 West Main Street, Suite 700
Durham, NC 27701
919.956.9124
888.232.9124
Fax 919.682.1449

January 29, 2013

J. Scott Young, Ph.D.
Department of Counseling and Educational Development
UNCG
P.O. Box 26170
Greensboro, NC 27402-6170

Dear Dr. Young,

The North Carolina Coalition Against Domestic Violence (NCCADV) is committed to the optimal care and wellbeing of domestic violence survivors. NCCADV is a statewide membership organization serving local programs and allied professionals for over 30 years. The mission of NCCADV is to create social change through the elimination of institutional, cultural and individual oppressions that contribute to domestic violence. The vision is to empower all North Carolina communities to build a society that prevents and eliminates domestic violence. NCCADV provides its members with programs and services to enhance service delivery to victims of domestic violence.

This letter provides permission for Laura K. Jones, student researcher, to work with the professionals and organizations represented by NCCADV in an effort to recruit women survivors to complete surveys in conjunction with her dissertation research entitled, *An exploration of perceived social support in female survivors of interpersonal trauma.* We are very excited about her study, which seeks to determine whether survivors, as a result of potentially experiencing the emotional numbing and decreased empathy that can occur following trauma, have difficulty accurately perceiving the positive support of others. We believe this is a valuable study because it may lead to more effective ways of empowering survivors and helping them to accurately perceive and find comfort in the emotional and practical support being offered to them by practitioners and advocates within our member programs.

My staff and I are committed to working with Laura to develop appropriate instruments and approaches to data collection, as well as to assisting her in contacting and networking with the professionals whom we represent. I understand the project proposal will be reviewed and approved by UNCG Institutional Review Board for Research Involving Human Participants prior to data collection.

If you need further information in support of this project please contact me at 919-956-9124, 202.

Sincerely,

Elizabeth Froehling, JD
Executive Director

APPENDIX M

INSTITUTIONAL REVIEW BOARD FULL STUDY APPROVAL

THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

OFFICE OF RESEARCH INTEGRITY
2718 Beverly Cooper Moore and Irene Mitchell Moore
Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
336.256.1482
Web site: integrity.uncg.edu
Federalwide Assurance (FWA) #216

To: John Young
Counsel And Ed Development
234 Curry Building

From: UNCG IRB

Authorized signature on behalf of IRB

Approval Date: 2/25/2013
Expiration Date of Approval: 2/03/2014

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Modification
Expedited Category: Minor Change to Previously Reviewed Research
Study #: 13-0002
Study Title: An Exploration of Perceived Social Support in Female Survivors of Interpersonal Trauma

This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this modification is no more than minimal.

Submission Description:

This modification, dated 2/8/13, addresses the following:

- Revisions in introductory page, demographic questionnaire, stressful life events questionnaire, emotional reactivity and numbing scale, supplementary service provision questions.
- Addition of women's experience with battering scale.
- Addition of NC Coalition Against Domestic Violence as a research site.

Regulatory and other findings:

This research meets criteria for a waiver of written (signed) consent according to 45 CFR 46.117(c)(1)(2).

Investigator's Responsibilities

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. These consent forms must be used unless the IRB has given you approval to waive this requirement.

CC:
Laura Jones, Counsel And Ed Development
ORI, (ORI), Non-IRB Review Contact

APPENDIX N

COPYRIGHT APPROVALS

Reprint of Figure 1.

On Wed, Feb 20, 2013 at 4:17 PM, Wheatley-Crosbie, Jane <wheatley_crosbie@mac.com> wrote:
Dear Laura,

Thanks for your email and your interest in my 2006 article. I'm happy for you to use the ANS image in your dissertation and your article with the appropriate accreditation as you already mentioned. Good luck with the process of completing your dissertation, and I'd love to see your article once it's finished.

Warmest regards,

Jane

_____
Jane R. Wheatley-Crosbie
wheatley_crosbie@mac.com
310-392-1975

On Feb 20, 2013, at 11:38 AM, Laura K. Jones wrote:
Dear Ms. Wheatley-Crosbie,

It is with considerable excitement that I write to you regarding my interest in your 2006 article entitled, *Healing Traumatic Reenactment: Psyche's Return from Soma's Underworld*. I am currently working on my dissertation in Counseling and Counselor Education, with my concentration being the intersection of neurophysiology and professional counseling, most notably implications for counseling women survivors of interpersonal trauma. As such, I am particularly interested in the figure on page 21 of your article depicting the Autonomic Nervous System Arousal. I have found no other image that portrays Porges theory more clearly and concisely than your figure and would welcome an opportunity to use it as a figure in my dissertation and in a peer-reviewed journal article on which I am currently working, most certainly including appropriate citations and references to your article. I, however, wanted to inquire about copyright permission on the article and ensure that it would be acceptable to you as the author and owner of the image.

I sincerely appreciate your time and consideration and look forward to hearing from you in the near future.

Best wishes and kindest regards,

Laura K. Jones

Laura K. Jones, MS, MA, NCC
Doctoral Candidate
Department of Counseling and Educational Development
The University of North Carolina Greensboro
Modification of the Stressful Life Events Screening Questionnaire.

On Thu, Feb 21, 2013 at 2:52 PM, Lisa Goodman <lisa.goodman@bc.edu> wrote:
These are great and important modifications Laura. Thanks for filling me in. I support all of them.
Best, Lisa

Lisa Goodman, Ph.D.
Professor and Director of Training
Department of Counseling and Developmental Psychology
Lynch School of Education
Boston College
Campion 310
Chestnut Hill, MA 02467

On Sun, Feb 10, 2013 at 11:06 PM, Lisa Goodman <lisa.goodman@bc.edu> wrote:

Hi Laura,
Yes you are definitely free to modify as you describe below (indicating the original source and the modifications). I'd be interested in hearing about what was suggested to you!
Best of luck in your research.
Best,

Lisa Goodman, Ph.D.
Professor and Director of Training
Department of Counseling and Developmental Psychology
Lynch School of Education
Boston College
Campion 310
Chestnut Hill, MA 02467

From: Laura K. Jones [lkjones@uncg.edu]
Sent: Sunday, February 10, 2013 10:29 PM
To: lgoodman@bss3.umd.edu; Lisa Goodman
Subject: Stressful Life Events Screening Questionnaire - Modification Request

Hi Dr. Goodman,

It is with excitement that I write to you regarding my interest in using your Stressful Life Screening Questionnaire as published in your 1998 article entitled, *Assessing Traumatic Event Exposure: General Issues and Preliminary Findings for the Stressful Life Events Screening Questionnaire*, in support of my dissertation research. I employed the original SLEQ as published in your article within my pilot study (with appropriate citations and credit) and in doing so received feedback from both statewide advocacy representatives (with whom I am working for data collection) and my specific study populations (sexual assault and domestic violence survivors) regarding suggestions for basic modifications to the wording of certain questions within the scale that they felt would make it more comfortable and representative for survivors such as themselves. I am using the SLEQ to gather basic information about certain past experiences of trauma, but not as a screening tool for inclusion or exclusion criteria.

As such, in an attempt to honor their voice, stories and comfort level in responding to the assessment, I am writing to request permission to make modifications to your scale for use with my specific sample in my research. I would most certainly denote that changes were made from the original and provide the citation at which the original can be found.

Thank you for your time and consideration.

I look forward to hearing from you in the near future.

Kindest regards,

Laura K. Jones

--

Laura K. Jones, MS, MA, NCC
Doctoral Candidate
Department of Counseling and Educational Development
The University of North Carolina Greensboro

Use of the Social Acknowledgement Questionnaire.

On Thu, Feb 14, 2013 at 4:12 AM, Andreas Maercker <maercker@psychologie.uzh.ch> wrote:

Dear Mrs. Jones,

herewith, I grant you my permission to use this scale in your studies. I wish you all success.

Best wishes,

Andreas Maercker, Ph.D. MD
Professor of Psychology and Chair
University of Zurich
Div. of Psychopathology &
Clinical Intervention
Binzmuhlestr. 14, Box 17
CH - 8050 Zurich
Tel. +41 44 635 7310
maercker@psychologie.uzh.ch
www.psychologie.uzh.ch/psypath/

Am 11.02.13 04:40, schrieb Laura K. Jones:
Dear Dr. Maercker:

It is with considerable excitement that I write to you regarding my interest in using your Social Acknowledgement Questionnaire as published in your 2004 article entitled, "Social Acknowledgment as a victim or survivor: A scale to measure a recovery factor of PTSD", in support of my dissertation research. I am a great admirer of your research and the significance that such work has on gaining a better understanding of the experiences of trauma survivors, their interpersonal relationships and ultimately their ability to regain a sense of wellbeing. I recognize that the scale is published within your article, but I was writing to request your express permission to use the scale as a valuable component to my study. I will most certainly provide the appropriate citation and credit.

Thank you for your time and consideration. I look forward to hearing from you in the near future.

Kindest regards,

Laura K. Jones